AUTHORITY TO DRILL A WELL

CANADA

Exploratory ☒
Development ☐

Delineation ☐
Service ☐

AUTHORITY TO DRILL A WELL

APPLICATION

This application is submitted with Section 82 of the Canada Oil and Gas Drilling Regulations. When approved under Section 83 of the Regulations, it is the requisite authority for the commencement of drilling operations.

Well Name in Full: ...Paramount et al Liard A-01

Operator: Paramount Resources Ltd. Drilling Program No.: -

Contractor: Precision Drilling Ltd. Permit or Lease No.: EL 381

Drilling Rig or Unit: .....373..... Estimated Well Cost: .....2,500,000.....

Location-Unit: ..A..... ..... Section: ....01..... Grid Area: 60° 10' 123° 15'

Coordinates: Lat.: ..60° 00' 04.641"..... Long.: ..123° 15' 04.862"..... .....

Area: ..Ft. Liard..... Field/Pool: .....-.....

Elevation: /KB: .....522.4..... (ASL) GL: 517.4 m.....

Approx. Spud Date: .January 11, 1999..... Estimated Days on Location: ....30.....

Anticipated Total Depth: ....2350 m..... Target Horizon(s) ...MATTSON.....

EVALUATION PROGRAM

Ten-metre sample intervals .....N/A.....

Five-metre sample intervals .....N/A.....

Canned sample intervals .....As specified from under surface casing shoe to TD.....

Conventional cores at .....N/A.....

Logs and Tests ..Resitivity and Porosity logs, DST may be called while drilling. .....

CASING AND CEMENTING PROGRAM

O.D	Weight:	Grade:	Setting Depth KB	Cementing Program (Volumes):
244.5	48.07	H-40	500	G + 2% $CaCl_2$ 48T
139.7	25.3	K-55	2350	G + additives 69T

B O P. Equipment: ...21 mPa stack and manifold - R/U - spool, pipe ram, blind ram, ..pipe ram, double choke and kill, annular and rotating head. Elastometers ....compatible with OBM. Diverter used for surface.

Other Information: .....

Signed: ...J. Muraton... Title: ...Drilling and Completions Consultant

Date: ..November 27, 1998..... Company: .Paramount Resurces Ltd.....

APPROVAL

An approved copy of this notice is to be posted at each wellsite.

Signed: ...Jerry Baker... Chief Conservation Officer

Date: .....Jan 16/99.....

File: 9211-P33-14-1-1, WID 1858

UWI 300A016010123150

Canada

WELL TERMINATION RECORD (with attachment)

CANADA

WELL TERMINATION RECORD

:This record is submitted in triplicate in compliance with Section 184 of the Canada Oil and Gas Drilling Regulations.

WELL DATA

Well Name: Paramount et al Fort Liard A-01 Area: Fort Liard

Grid Area: 60° 10' 123° 15' Field/Pool: N/A

Permit or Lease No.: EL381 Final Coordinates: Lat.: 60° 00' 04.641" Long: 123° 15' 04.862"

Drilling Unit: Precision 373 Elevations-RT(KB) 522.65 SF(GL) 517.15

Spud Date: February 09, 1999 Rig Released: March 24, 1999 Total Depth: 2046m

CASING AND CEMENTING

O.D.:	Weight:	Grade:	Depth Set:	Cement and Additives:
349.7	81.1	K-55	503	56 Tonnes 0:1:0"G"
177.8	34.26	L-80	2046	17 Tonnes 1:1:2"G"
				15 Tonnes 0:1:0"G"

PLUGGING PROGRAM

Approval of the following program was obtained by (parson) N/A from

(person) by means of

on 19 .

Type of Plug:	Interval:	Felt:	Cement and Additives:
N/A			

Lost Circulation/Overpressure Zones: none

Equipment left on Seafloor (Describe): N/A

Provision for Re-entry (Describe and attach sketch): Well Suspended is/well head

Cores: Type: Conventional Intervals: 1333.0m - 1351.2m

Other Downhole Completion/(Suspension) Equipment:

CERTIFICATION

I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate.

Signed: Wayne R. Tomm P. Eng. Title: Sr. Drilling & Completions Engineer

Name: Wayne R. Tomm Date: September 21, 2000

Acknowledged by: D M Baker
Engineering Branch

Date: Oct 13/00

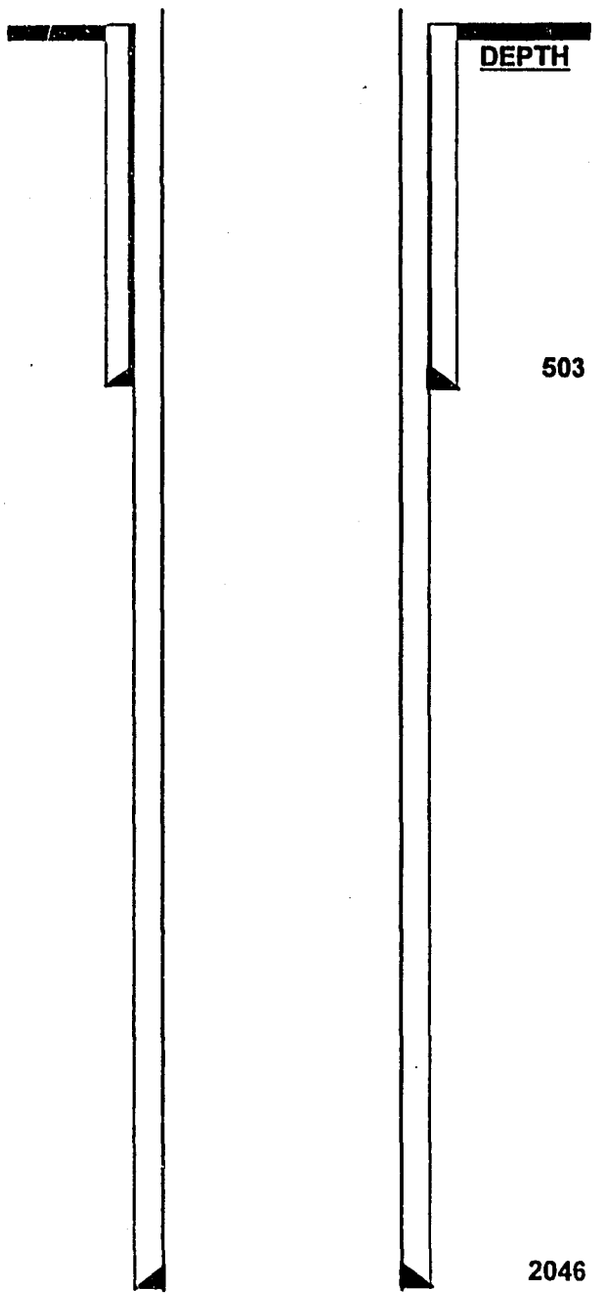
File: 9211-P33-14-1
WID: 1858
UWI: 300A016010123150

Well Status
Suspended ☒
Completed ☐
Abandoned ☐

Canada

PARAMOUNT ET AL LIARD A-01

(As Drilled: March 24, 1999)



DEPTH	HOLE SIZES	CASING
		349.7 mm, K-55 kg/m K-55
		Cement: 56 tonnes 0:1:0 "G"
503	445.5mm	
		177.8 mm, 34.26 kg/m L-80
		Cement: 17 tonnes 1:1:2 "G" plus 15 tonnes 0:1:o "G"
2046	222	

APPROVAL TO ALTER CONDITION OF A WELL

National Energy Board

Office national de l'énergie

APPROVAL TO ALTER CONDITION OF A WELL

This application is to be submitted to the Chief Conservation Officer at least 45 days before commencement of operations.

Well Name: Paramount et al Liard A-01

Area: 60° 10' 123° 15'

Operator: Paramount Resources Ltd.

Contractor: Cenalta

Drilling Rig or Unit: Cenalta Rig R-042

Depth: 2046m

Coordinates: Lat: 60° 00' 04.641"

Long: 123° 15' 04.862"

Date ADW Issued: January 16, 1999

Date of last Operation: March 24, 1999

Elevation-KB/RT: 522.4 (ASL)

GL/Seafloor: 517.4

TYPE OF OPERATION

- Well was drilled to a total depth of 2046m with 222mm hole diameter.
- The hole was subsequently logged ie HDIL-GR, CN-ZOL-GR-XY and XMAC-GR; a total of 7 DST's were run, 177.6mmx34.26kg/m. L-80 casing was run to 2046m and cemented to surface.

SUMMARY OF PROPOSED OPERATIONS

- run cement bond log and determine cement top
- perforate 1875m -1882m and evaluate with possible stimulation and test.
- isolate perforations 1875m - 1882m by setting a bridge plug
- perforate 1839.5m - 1843.5m and 1832.5m -1835.5m, and flow test
- set a bridge plug at 1825m
- perforate 1787m - 1792m, evaluate with possible stimulation and flow test
- suspend completed well.

Signed: *Wayne R. Tomm*
Responsible Officer

Name: Wayne R. Tomm

Title: Sr. Drilling and Completions Engineer

Company: Paramount Resources Ltd.

Date: January 26, 2000

Phone: (403) 290-3600

APPROVAL

An approved copy of this notice is to be posted at each wellsite.

Date: Feb. 7, 2000

Signed: *Chief Conservation Officer*

File: 9211-P33-14-1

WID: 1858

UWI 300A016010123151

Well Status

Suspended ☑

Completed ☐

Abandoned ☐

WELL TERMINATION RECORD (with attachment)

CANADA

WELL TERMINATION RECORD

This record is submitted in triplicate in compliance with Section 184 of the Canada Oil and Gas Drilling Regulations.

WELL DATA

Well Name: Para.et.al.Fort.Liard.A-01 Area: .Fort.Liard.....

Grid Area: 60°..10'N..123°..15'W Field/Pool: .....

Permit or Lease No.: EL 381 Final Coordinates: Lat.: 60°.0'..4.641".... Long: 123°.15'..4.862"..

Drilling Unit: Canalta.142 Elevations: ~~RT~~/KB 522.65m GL: 517..15m.....

Re-entry Date: Feb..9,..2000 Rig Released: Mar..22.2000 Total Depth: 2046.mKB .....

CASING AND CEMENTING

O.D.:	Weight:	Grade:	Depth Set:	Cement and Additives:
339.7mm	81.1kg/m	K-55	503	56t.A:1:0'G'
177.8	34.26	L-80	2046	17t.L:1:2.'G'..plus
				15t.A:1:0.'G'

PLUGGING PROGRAM

Approval of the following program was obtained by (person) ..... from

(person) ..... by means of

..... on ..... 19 .

Type of Plug:	Interval:	Felt:	Cement and Additives:

Lost Circulation/Overpressure Zones: .....

Equipment left on Seafloor (Describe): .....

Provision for Re-entry (Describe and attach sketch): .....

Cores: Type: ..... intervals: .....

....

Other Downhole Completion/Suspension Equipment: As.per.attached.bottom.hole.diagram.....

.....

CERTIFICATION

I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate.

Signed: Dave Block ..... P. Eng.

Name: Dave.Block.....

Title: .Engineering.Consultant.....

Date: .July..18,..2001.....

Acknowledged by: .....
Engineering Branch

Date: July 21/01

File: ..9211-P33-14-1..WID 1858.....

UWI: 300A016010123151

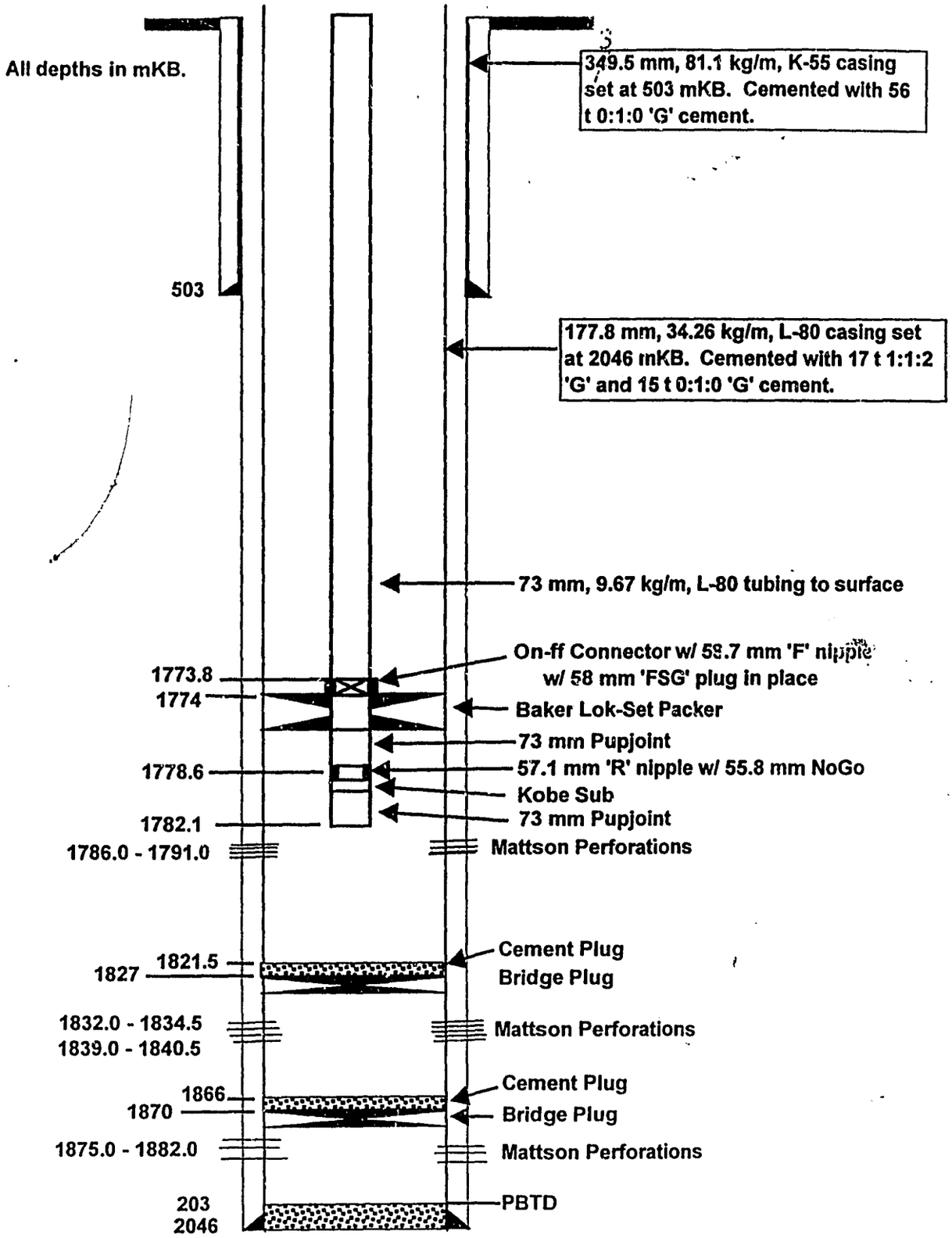
Well Status

Suspended	☒
Completed	☐
Abandoned	☐

Canada

PARAMOUNT ET AL FORT LIARD A-01

(As at March 22, 2000)



FINAL WELL REPORT

Paramount Resources Ltd.

FINAL WELL REPORT

Paramount et al Fort Liard A-01

60^0 10' 123^0 15'

Latitude 60^0 00' 04.641" Longitude 123^0 15' 04.862"

Prepared By: Wayne Tomm
Date: October 19, 2000

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A. INTRODUCTION

Paramount Resources Ltd. drilled a 2046 metre exploratory well spudded on February 09, 1999 and finishing on March 19, 1999 to evaluate gas potential in the Mattson formation at a depth of 1721 mKB.

The drilling contractor was Precision Drilling Rig #373 based out of Calgary, Alberta. The drilling rig used was a Diesel Electric land rig rated for 2400 m. The rig had a 82.2 m^3 mud system and was equipped with one boiler.

The well was drilled on Exploration License No 381 in which Paramount has a 30 % working interest. Operating License No. WID #1858 was issued to Paramount Resources Ltd. on January 16, 1999.

The well which was located approximately 35 km south-east of the Fort Liard. The exact co-ordinates of the well are as follows:

Latitude: 60^0 00' 04.641"
Longitude: 123^0 15' 04.862"

The rig was moved onto the location February 06,1999 and the well spudded on February 09, 1999 at 05:30 hours to drill the 444.5 mm surface holer hole to a depth of 503 m The diverter was nippled up and functioned tested with the HCR prior to spud.

339.7 mm x 81.1 kg/m x K-55 ST&C casing was run with no problems and cemented with 56 tonnes of 0:1:0 "G" Cement + 1.0 % $CaCl_2$ There was good mud returns reported throughout the cement job with 5 m^3 cement returns. The plug was bumped and the pressure held. The plug was down at 21:59 hours on February 15, 1999. The surface casing was set at 503 m.

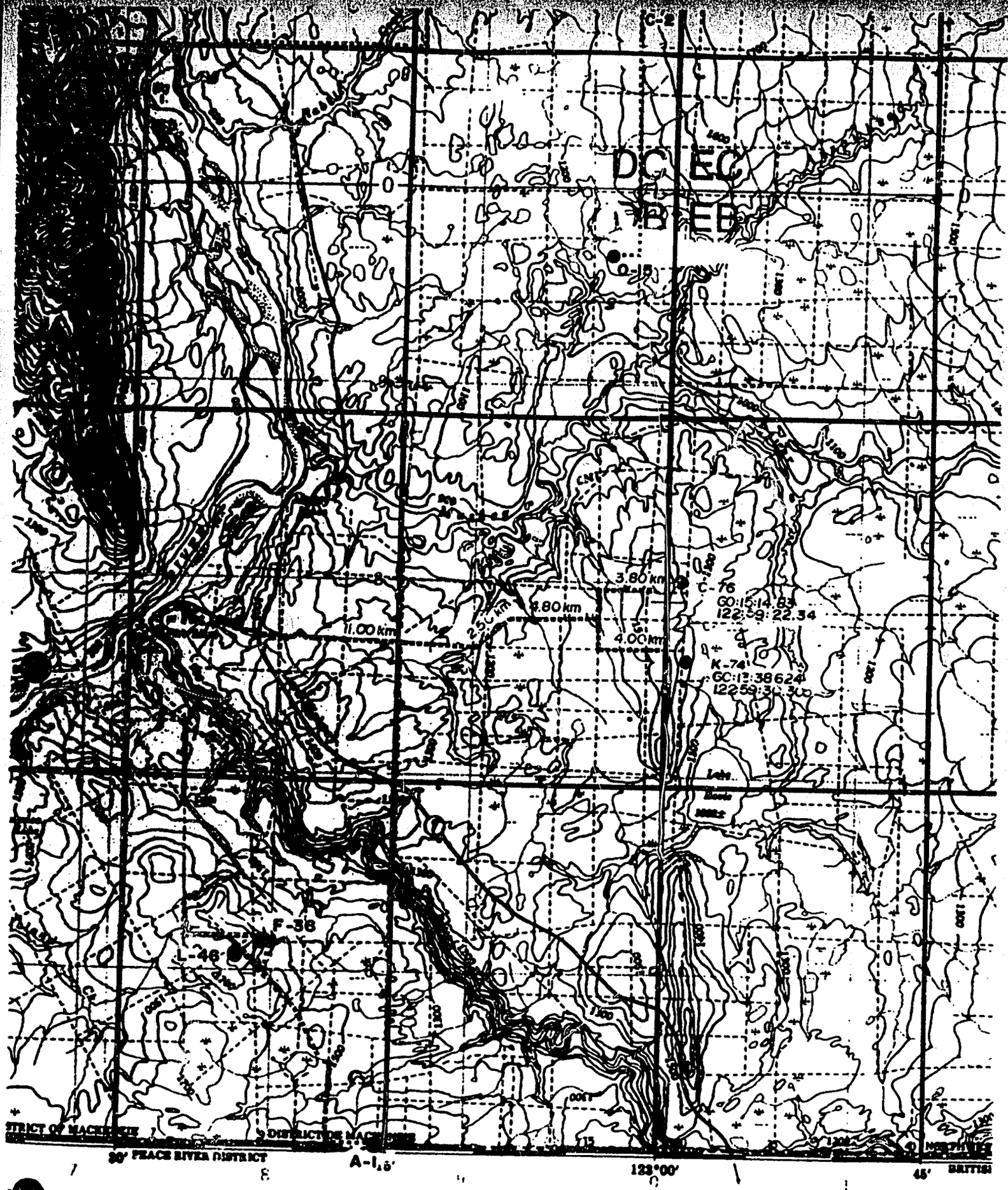
The BOP's were installed and pressure tested. The annular preventor, pipe rams, kelly cock, stabbing valve and downhole BOP valve were tested. The accumulator precharge bottles were checked and the accumulator function tested prior to drilling out.

The float collar and shoe were drilled out on March 7, 1997. A formation leak off test was done and the gradient was taken to 30.2 kPa/m without breaking down the formation. The 222 mm main hole was drilled ahead to 2046 m in the Mattson.

After total depth had been reached the open hole was logged by Baker Atlas. Log run # 1 was a HDIL-GR, Log run # 2 was a ZDL-CNL-GR-XYCAL, . Log run # 3 was a MAC-GR-CAL from total depth to surface.

After logging, nine(9) Drill Stem Tests (DST's) were run:

DST #	Interval	Zone-
1	1906_1917m	Mattson
2	1865-1992m	Mattson
3	1819-1848m	Mattson
4	1781-1804.4m	Mattson
5	1405-1429m	Chinkeh
6	1638-1698m	Fantasque
7	2028-2046m	Mattson
8	1955-1965m MR	Mattson
9	1955-1965m MR	Mattson



Information concerning bench marks and horizontal survey monuments can be obtained from Geodetic Survey, Surveys and Mapping Branch, Ottawa

For fuel resources see back geology

FORT LIARD

NORTHWEST TERRITORIES YUKON TERRITORY

TERRITOIRES DU NORD-OUEST TERRITOIRE DU YUKON

B. GENERAL DATA

1. Well Name: Paramount et al Liard A-01

Authority to Drill a Well No: WLD 1858

Exploration Agreement Number: EL 381

Location Unit: A

Section: 01

Grid Area: 60^0 10', 123^0 15'

Classification: Exploration

2. Well Location:
Coordinates: Latitude: 60^0 00' 4.641"
Longitude: 123^0 15' 04.862"

3. Unique Well Identifier: UWI 300A016010123150

4. Operator: Paramount Resources Ltd.

5. Contractor: Precision Drilling

6. Drilling Unit: Rig # 373
Convential Land Rig

7. Position Keeping: Not Applicable, Land Rig

8. Support Craft: None

9. Drilling Unit Performance:N/A

10. Difficulties and Delays: none .....

11. Total Well Cost: $2,350,000.00

12. Horizontal Deviated Wells Require Bottom Hole Co-ordinates: N/A

C. SUMMARY OF DRILLING OPERATIONS

1. Elevations:

Ground:	517.15m
KB:	522.65m
KB To Casing Flange:	5.50m

2. Total Depth:

FTD:	2046 mKB
PBTD:	2037.2mKB
TVD:	2046mKB

3. Date and Hour Spudded: February 09, 1999 @ 05:30 hrs

4. Date Drilling Completed: March 19, 1999 @ 20:20 hrs

5. Date of Rig Release: March 25, 1999

6. Well status: Completed and Suspended

7. Hole Sizes and Depths:

Surface Hole:	445 mm to .503 mKB
Main Hole:	222 mm to .2046 mKB

8. Casing and Cementing Record:

Surface Hole:

Casing Size:	339.7 mm
Casing Weight:	81.1 kg/m
Casing Grade:	K-55
Casing Make:	Ipsco
Number of Joints:	38
Thread:	ST&C
Depth Set:	503 m (KB)
Cut Height:	At Surface (KB)
Date Set:	February 15, 1999
Cement Volume:	56 Tonnes
Float Shoe Depth:	503 m
Float Collar Depth:	489.9 m
Cut Off Depth:	n/a
Cement Type:	0:1:0 "G"
Additives:	1.0% $CaCl_2$
Cement Top:	Surface
Casing Bowl Size:	349 mm X 339.7 mm X 21 mpa
Casing Bowl Make:	ABB Vetco

9. Sidetracked Hole: **N/A.**

10. Drilling Fluid:

Conductor Hole: Gel – Chemical

Surface Hole: Gel - Chemical

Properties:		
	Viscosity:	50 sec/L
	Weight:	1175 kg/m^3
	PH:	8.0
	Water loss:	8.0 cc
	Solids:	0.115%
	Gels:	4
	Filter Cake:	1.5
	PV / YP:	22/7.7

Main: Invert Oil Mud

Properties:		
	Viscosity:	50 sec/L
	Weight:	985 kg/m^3
	PH:	
	Water loss:	6 cc
	Solids:	3%
	Oil:	92%
	Gels:	2
	Filter Cake:	1.0
	PV / YP:	12/5.3

11. Fishing Operations: **n/a**

12. Well Kicks and Well Control Operations: **n/a**

13. Formation Leak Off Tests:

Depth:	508 m
Fluid Density:	1000 kg/m^3
Applied Pressure:	9700 kPa
Hydrostatic Press.	5526 kPa
Casing Setting Depth:	503 mKB
Equivalent Mud weight	3946 kg/m^3

The leak-off test was taken to a gradient of 30.2 kPa /m without breaking down the formation.

14. Time Distribution: (see morning reports)

15. Deviation Survey:

16. Abandonment Plugs: N/A

17. Composite Well Record: **See attached Well Logs.**

18. Completion Record: (if any)

Start Date: .....February 09, 2000
Finish Date: ..... .March 22, 2000
Contractor: .....Cenalta Rig #42

Completion Summary: (3 intervals evaluated separately)

i) First Interval

Date: February 10, 2000
Perforation Interval: 1875.0m – 1882.0mKB
Stimulation / Comments:Performed: Gelled water frac, Pumped 5.5 tonnes into formation, formation break down at 58.4MPa
Flow Results: No inflow on pre-frac, Used coiled tubing and N_2 to clean well out after frac. No gas influx, swabbed 20.0m^3 18000ppm formation water
Abandon Perfs.: set Bridge plug at 1870mKB, 4m cement on top of BP

ii) Second interval evaluated

Date: February 19, 2000
Perforation Interval: 1832.0m – 1834.5mKB and 1839.0m – 1840.5mKB
Stimulation / Comments:Performed: Gelled water frac, Pumped 5.5 tonnes into formation, formation break down at 58.4MPa
Flow Results: Inflow TSTM and swabbed 29m^3 20000ppm salt water
Abandon Perfs.: set Bridge plug at 1827mKB, 5.5m cement on top of BP

i) Third Interval

Date: February 23, 2000

Perforation Interval: 1786.0m – 1791.0mKB

Stimulation: Performed nitrified Gelled water frac, Pumped 4.7 tonnes into formation, formation break down at 45.5MPa

Flow Results: No inflow on pre-frac, Used coiled tubing and N_2 to clean well out after frac. gas influx TSTM, recovered 4.3m^3 frac fluid

Used coiled tubing and N_2 to clean well out second time. recovered 4.35m^3 frac fluid

Abandon Perfs.: set wireline plug in packer at 1772mKB.

Final Well Configuration: Attach Stick Diagram. (See Attachment F(vii))

BIT RECORD

#	Type	Size (mm)	In	Out	Total (m)	Hrs drilled	FOB (daN)	RPM	Cond. T B G
1A	SM FD SS	311	0	281	281	25.00	6-8	180	6-4-I
2A	V L127XG	311	281	501	220	32.50	5-8	180	5-4-I
1B	R S21GT	445	0	295	295	19.75	6-10	140	3-5-I
2B	HC X33	445	295	503	208	32.50	6-12	140	4-4-I
1	ETD437XG	222	503	1118	615	61.00	6-14	65-120	4-4-I
2	ETD527XG	222	1118	1333	215	34.00	10-12	65-120	2-2-I
1C	ARC 325	156	1333	1351	18	2.00	3-4	60	GOOD
3RR2	ETD527XG	222	1351	1450	119	53.00	8-10	70-120	5-4-1
4	C3LRGSP	222	1520	1654	204	50.25	10-16	60-120	8-L2C
5	C45LRGS	222	1654	1654	0	Clean out to top of fish.			
6RR5	C45LRGSP	222	1654	1654	0	Clean out to top of fish.			
7	HC HR40C	222	1654	1696	42	14.50	8-12	100/135	6-E-1
8	SM GM89FD	222	1696	1783	87	40.40	8-12	100/135	4-E-I
9	SM GM89F	222	1783	1789	6	6.00	8-12	100	1-A-I
10RR9	SM GM89F	222	1789	1851	62	24.75	8-10	100/135	5-E-I
11	RD. HP64	222	1851	1917	66	32.00	8-10	100/145	6-E-I
12RR1	ETD437	222	1917	1917	0	Clean out trip.			
13	SM F57OD	222	1917	1935	18	11.5	8-10	90	2-E-I
14RR1	ETD437	222	1935	1935	0	Clean out trip.			
15RR13	ETD437	222	1933	2046	111	80.5	12-18	80	7-E-2

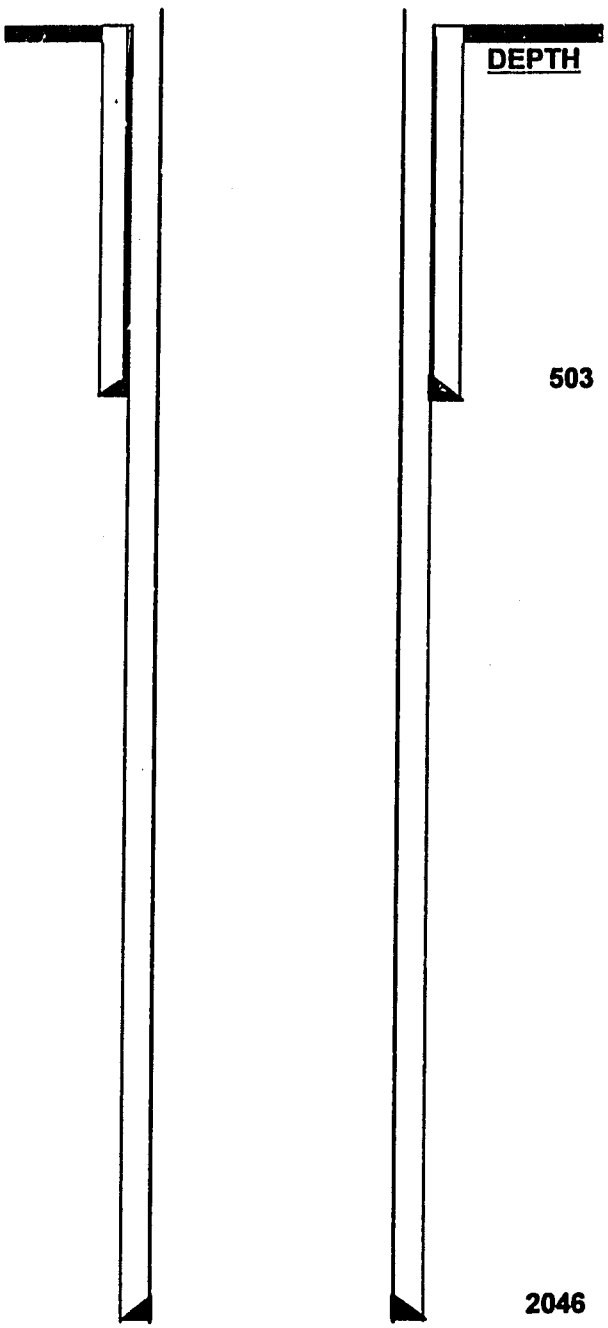
BIT CONDITION		SCALE
Tooth Wear	(T)	0 - 8
Bearing Wear	(B)	0 - 8
Gauge	(G)	in or (mm) under
New Bit	T=0	B=0 G=in

DEVIATION SURVEY RECORD

Depth (m)	Deviation	Azimuth	Depth (m)	Deviation	Azimuth
40 (311mm)	0.06		1571	1.50	
68	0.25		1619	2.25	
95	0.88		1648	3.50	
125	0.25		517 (UGC)	1.30	286.1
153	0.25		646	1.20	263.7
182	0.25		788	1.00	274.7
211	1.00		925	0.80	282.0
228	0.75		1061	1.00	266.7
258	0.75		1182	1.30	281.9
288	0.50		1318	1.90	286.1
316	0.88		1451	1.10	283.0
343	0.75		1587	1.70	328.9
372	1.00		1638	3.20	318.1
401	0.25		1644	2.90	318.0
430	0.25		1653	3.50	319.8
460	1.00		1653	3.80	322.3
488	0.88		1673	4.10	319.3
95 (445mm)	0.25		1682	4.00	312.9
153	0.25		1692	3.70	306.4
211	0.13		1701	3.30	303.2
316	0.50		1711	2.80	299.3
380	0.25		1721	2.50	296.5
430	0.75		1731	2.40	296.1
530 (222mm)	1.25		1740	2.50	294.0
575	1.25		1749	2.60	294.5
625	1.25		1759	2.80	295.0
671	Misrun		1768	2.90	295.5
680	1.50		1775	3.00	295.7
728	1.00		1788	2.70	290.8
785	1.25		1798	2.60	281.0
835	0.75		1807	2.70	276.0
890	1.00		1817	3.10	273.4
939	1.00		1827	3.40	273.7
997	1.00		1836	3.60	273.3
1044	1.00		1846	3.40	272.9
1092	1.50		1855	3.30	271.0
1149	1.31		1865	3.20	271.8
1198	1.50		1874	3.00	272.2
1255	1.50		1884	2.90	275.1
1313	2.00		1894	3.00	276.4
1351	2.00		1903	3.20	278.3
1390	1.88		1935 (Extrap)	3.85	284.6
1428	1.50		2039	4.00 (?)	
1476	0.75				
1523	1.25				

PARAMOUNT ET AL LIARD A-01

(As Drilled: March 24, 1999)



DEPTH	HOLE SIZES	CASING
		349.7 mm, K-55 kg/m K-55
		Cement: 56 tonnes 0:1:0 "G"
503	445.5mm	
		177.8 mm, 34.26 kg/m L-80
		Cement: 17 tonnes 1:1:2 "G" plus 15 tonnes 0:1:o "G"
2046	222	

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
02/09/99	214m	191m	15.00	Nipple up diverter and mix mud. Rig to spud. Held diverter drill. Spud at 05:30 hrs. 02/09/99. Drill and survey 311mm pilot hole. Clean mud rings from flow line.
02/10/99	348m	134m	18.25	Drill and survey 311mm pilot hole. Trip out of hole for bit change at 281m. Make up and run BHA into hole. Clean out bridges from 205m to bottom. Drill and survey 311mm pilot hole.
02/11/99	492m	144m	22.25	Drill and survey 311mm pilot hole.
02/12/99	501m	9m	16.50	Drill and survey 311mm pilot hole to 501m. Trip out of hole. Lay down pipe and collars. Tight hole 377m - 256m. Make up BHA and open hole to 444.5mm. Drill 445mm hole. Survey.
02/13/99	501m	0m	19.00	Open hole to 444.5mm to 295m. Circulate bottoms up. Trip out of hole for bit change. Clean hole 280m to 295m. Open hole to 444.5mm to 363m.
02/14/99	503m	2m	20.00	Ream out 311mm hole to 444.5mm to 501m. Drill 444.5mm hole to 503m. Circulate hole clean. Perform wiper trip. Hole tight 247m to 185m.
02/15/99	503m	0m	0.00	RIH. clean 401m to bottom. Circulate and condition hole. Trip out of hole and lay down 200mm drill collars. Run joints of 349.7mm, 81.1kg/m, K-55, LT&C, 8rd, surface casing landed at 503m. Circulate and condition hole. Rig up cementers.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
				Cement surface casing. Wait on cement.
02/16/99	503m	0m	0.00m	Wait on cement. Cut casing. Remove pipe racks and cat walk to break down diverter and related equipment. Install casing head, BOP stack, and HCR lines. Change out rams. Re-install catwalk and tie in manifold. Circulate invert at tank farm.
02/17/99	560m	57m	5.00	Nipple up BOPs. Pressure test with Falcon Pressure Testers. Make up BHA and RIH. Circulate. Pressure test lower pipe rams, upper pipe rams, annular, BOP valves, HCR valve, kill line valves, stabbing valve, inside BOP, upper and lower kelly cocks. Drill out float, cement, and shoe. Drill 5m 222mm hole. Circulate bottoms up. Perform leak off test. Drill 222mm hole. Survey.
02/18/99	800m	240m	20.25	Drill 222mm hole. Survey.
02/19/99	984m	184m	22.00	Drill 222mm hole. Survey.
02/20/99	1118m	134m	14.25	Drill 222mm hole. Survey. Circulate bottoms up. Trip out of hole. Work tight hole at 928m. Make up BHA and RIH. Clean to bottom.
02/21/99	1234m	116m	22.25	Drill 222mm hole. Survey.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
02/22/99	1333	99m	12.00	Drill 222mm hole to 1306m. Circulate up sample. Drill 222mm hole to 1325m. Circulate up sample. Drill 222mm hole to 1331m. Circulate up sample. Drill 222mm hole to 1332m. Circulate up sample. Drill 222mm hole to 1333m. Circulate up sample. Pump pill and trip out of hole. Pick up core barrels. Slip and cut drilling line.
02/23/99	1363m	30m	8.00	Wait on jars. R.I.H. Clean 16m to bottom. Circulate. Drop ball. Cut Core #1. Circulate bottoms up. Pump pill. Trip out of hole and recover core. Service and lay down core barrels. Make up BHA and RIH. Ream rathole. Drill 222mm hole. Survey.
02/24/99	1454m	91m	16.00	Drill 222mm hole to 1452m. Circulate. Pump pill. Trip out of hole for bit change. Make up BHA and RIH. Clean 8m to bottom. Drill 222mm hole.
02/25/99	1587m	133m	21.00	Drill 222mm hole. Survey.
02/26/99	1638m	51m	22.00	Drill 222mm hole. Survey.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
02/27/99	1654m	16m	6.50	Drill 222mm hole. Survey. Pump pill and trip out of hole. Missing 2 cones. Lay down 2 drill collars. RIH with near bit stabilizer. Problems with rubber from cement wiper plug. Trip out of hole and lay down stabilizer. Change out BHA and RIH. Ream undergauge hole.
02/28/99	1654m	0m	5.25	Ream undergauge hole from 1636m to 1654m. Trip out of hole. RIH with magnet Circulate to top of fish Work tool. Trip out of hole. Recover steel slivers. RIH with mill. Mill on fish. Trip mill out of hole.
03/01/99	1654m	0m	0.00	Trip mill out of hole. Make up magnet and RIH. Circulate and work magnet. Trip out of hole. Recover steel slivers and bearings. RIH with bit. Circulate and work on junk. Trip out of hole. RIH with magnet. Circulate and work magnet. Trip out of hole and recover 1 cone. RIH with magnet.
03/02/99	1687m	33m	9.25	RIH with magnet. Circulate and work magnet. Trip out of hole and recover 1 cone and 2 bearing carriers. Pick up United Geocom directional drilling tools and MWD. Directional survey to bottom. Drill 222mm hole. Slide 1678m to 1687m.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
03/03/99	1714m	27m	15.50	Directional drill 22mm hole to 1696m. Trip out of hole. Change bit and set up motor to 1.25. RIH. Directional drill 222mm hole.
03/04/99	1763m	49m	22.00	Directional drill 222mm hole. Survey.
03/05/99	1789m	26m	12.75	Directional drill 222mm hole to 1783m. Survey. Trip out of hole for bit change. RIH with NB # 9. Directional drill 222mm hole to 1789m. Trip out of hole for mud motor failure.
03/06/99	1828m	39m	16.25	Trip out of hole and change out mud motor. RIH and clean to bottom. 1.5m fill. Directional drill 222mm hole. Survey.
03/07/99	1863m	35m	14.50	Directional drill 222mm hole. Survey. Circulate up sample. Trip out of hole for mud motor failure. Change bit and mud motor and RIH. Slip drilling line and finish RIH. Clean to bottom. 3m fill.
03/08/99	1908m	45m	22.50	Directional drill 222mm hole. Survey.
03/09/99	1917m	9m	3.50	Directional drill 222mm hole. Survey. Stop drilling at 1917m and circulate up sample. Pump pill. Trip out of hole and lay down directional tools. Make up test tools and RIH. Perform DST #1. Pull test tools free and pull out of hole. Recover fluid.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
03/10/99	1926m	9m	6.00	Reverse circulate out DST #1 recovery. Trip out of hole and recover and read recorders. Service test tool and laydown on catwalk. RIH for clean out trip. Circulate and trip out of hole. Break down and load out test tools. RIH. Circulate to bottom. Drill 222mm hole.
03/11/99	1935m	9m	5.50	Drill 222m hole to a total depth of 1935m. Circulate up sample. Wiper trip. Circulate and condition hole. Trip out of hole. Rig up Baker Atlas and log well.
03/12/99	1935m	0m	0.00	Finish logging with Baker Atlas. Pick up Baker Oil Tools test tools. RIH and perform DST #2. Lost seat during preflow. Trip out of hole. Recover and read recorders. Change out top and bottom packers. Dump and save fluid from 1 BHS. Make up tools and RIH. Head up and prepare for DST #3.
03/13/99	1935m	0m	0.00	Perform DST #3. Trip out of hole with test tools. Reverse out 200m of fluid recovery. Finish tripping out of hole. Recover recorders, samplers, and service tool. Slip and cut drilling line. Trip in hole. Head up and perform DST #4.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
03/14/99	1935m	0m	0.00	Perform DST #4. Trip out of hole with test tools. RIH with DST #5. Perform DST #5.
03/15/99	1935m	0m	0.00	Perform DST #5. Trip out of hole with test tools. Lay down tools and RIH for clean out. Circulate hole clean. Trip out of hole. Make up test tool and RIH. Perform DST #6.
03/16/99	1942m	7m	8.00	Perform DST #6. Trip out of hole with test tools. Service and load out test tools. Make up BHA and strap in hole. Clean to bottom and drill 222mm hole.
03/17/99	1982m	40m	23.25	Drill 222mm hole.
03/18/99	2016m	34m	19.25	Drill 222mm hole. Circulate up sample. W.O.O. Drill 222mm hole.
03/19/99	2046m	30m	18.50	Drill 222mm hole. Circulate up sample. Drill 222mm hole. Circulate up sample. Wiper trip. Circulate and condition hole.
03/20/99	2046m	0m	0.00	Circulate and condition hole. Strap out to log. Log with Baker Atlas. Rig out loggers. Lay down collars. Pick up Baker test tools and RIH. Perform DST #7.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
03/21/99	2046m	0m	0.00	Perform DST #7. Deflate, pull free, and trip out of hole. Recover recorders and service tools. Make up DST #8 and RIH. Pump up packers. No seat. Try unsuccessfully to re-pump up packers. Trip out of hole. Change out bottom packer and pump.
03/22/99	2046m	0m	0.00	Make up test tool. RIH with DST #9. Perform DST #9. POOH, recover fluid, service test tool, and recover recorders. Break down test tool and load out. RIH with bit. Circulate and condition hole. Lay down pipe.

Oscarcom for Windows
Survey Calculation Program
UNITED GEOCOM DRILLING SERVICES

Customer: PARAMOUNT RESOURCES LTD.
WellName: PARAMOUNT etal LIARD AO1-60-00-123-15
Location: LAT 60°, 00', 04.641" LONG 123°, 15', 04.862"
PRECISION 373 , FILE # 9218P
DIR. DRILLER: DAVE GOIN. CORRECTION RUN
Vertical Section Calculated on: 270.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\WINDOWS\DESKTOP\WELL\9218-P1.SR3

#	Depth Meters	Inc Degree	Azimuth Degree	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m	BldRate /30m	TrnRate /30m	Cls Dist Meters	Cls Azi Degrees
TIE ON SURFACE CASING SHOE SET @ 503m M.D.												
0	503.00	0.00	0.00	503.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	517.09	1.30	286.10	517.09	0.04	-0.15	0.15	2.77	2.77	0.00	0.16	286.10
2	646.46	1.20	263.70	646.43	0.30	-2.91	2.91	0.11	-0.02	-5.19	2.93	275.94
3	788.39	1.00	274.70	788.33	0.24	-5.62	5.62	0.05	-0.04	2.33	5.63	272.46
4	925.23	0.80	282.00	925.16	0.54	-7.75	7.75	0.05	-0.04	1.60	7.76	273.97
5	1061.40	1.00	266.70	1061.31	0.67	-9.86	9.86	0.07	0.04	-3.37	9.88	273.87
6	1182.34	1.30	281.90	1182.22	0.89	-12.26	12.26	0.11	0.07	3.77	12.29	274.15
7	1317.75	1.90	286.10	1317.58	1.83	-15.92	15.92	0.14	0.13	0.93	16.02	276.55
8	1451.15	1.10	283.00	1450.93	2.73	-19.29	19.29	0.18	-0.18	-0.70	19.48	278.05
9	1586.73	1.70	328.90	1586.48	4.74	-21.60	21.60	0.27	0.13	10.16	22.11	282.39
10	1637.93	3.20	318.10	1637.63	6.46	-22.94	22.94	0.92	0.88	-6.33	23.84	285.72
11	1643.79	2.90	318.00	1643.48	6.69	-23.15	23.15	1.54	-1.54	-0.51	24.10	286.12
12	1653.38	3.50	319.80	1653.06	7.09	-23.50	23.50	1.90	1.88	5.63	24.55	286.80
13	1663.04	3.80	322.30	1662.70	7.57	-23.89	23.89	1.05	0.93	7.76	25.06	287.59
14	1672.51	4.10	319.30	1672.14	8.08	-24.30	24.30	1.15	0.95	-9.50	25.61	288.39
15	1682.10	4.00	312.90	1681.71	8.57	-24.77	24.77	1.45	-0.31	-20.02	26.21	289.07
16	1691.75	3.70	306.40	1691.34	8.98	-25.27	25.27	1.64	-0.93	-20.21	26.82	289.56
17	1701.26	3.30	303.20	1700.83	9.31	-25.74	25.74	1.40	-1.26	-10.09	27.38	289.88
18	1710.91	2.80	299.30	1710.47	9.58	-26.18	26.18	1.68	-1.55	-12.12	27.88	290.09
19	1720.52	2.50	295.50	1720.07	9.78	-26.58	26.58	1.08	-0.94	-11.86	28.32	290.21
20	1730.15	2.40	296.10	1729.69	9.95	-26.95	26.95	0.32	-0.31	1.87	28.73	290.29
21	1739.76	2.50	294.00	1739.29	10.14	-27.32	27.32	0.42	0.31	-6.56	29.14	290.36
22	1749.36	2.60	294.50	1748.88	10.31	-27.71	27.71	0.32	0.31	1.56	29.56	290.41
23	1759.00	2.80	295.70	1758.51	10.50	-28.12	28.12	0.65	0.62	3.73	30.02	290.48
24	1768.46	2.90	295.50	1767.96	10.71	-28.54	28.54	0.32	0.32	-0.63	30.49	290.56
25	1777.98	2.90	293.50	1777.47	10.91	-28.98	28.98	0.32	0.00	-6.30	30.97	290.62
26	1787.59	2.70	290.80	1787.06	11.08	-29.42	29.42	0.75	-0.62	-8.43	31.44	290.65
27	1797.73	2.60	281.00	1797.19	11.21	-29.87	29.87	1.37	-0.30	-28.99	31.90	290.58
28	1807.49	2.70	276.00	1806.94	11.28	-30.31	30.31	0.77	0.31	-15.37	32.34	290.41
29	1817.12	3.10	273.40	1816.56	11.32	-30.80	30.80	1.31	1.25	-8.10	32.81	290.18
30	1826.69	3.40	273.70	1826.11	11.35	-31.34	31.34	0.94	0.94	0.94	33.33	289.91
31	1836.27	3.60	273.30	1835.68	11.39	-31.92	31.92	0.63	0.63	-1.25	33.89	289.63
32	1845.87	3.40	272.90	1845.26	11.42	-32.51	32.51	0.63	-0.63	-1.25	34.45	289.36
33	1855.33	3.30	271.00	1854.70	11.44	-33.06	33.06	0.47	-0.32	-6.03	34.98	289.09
34	1864.88	3.20	271.80	1864.24	11.45	-33.60	33.60	0.34	-0.31	2.51	35.50	288.82
35	1874.48	3.00	272.20	1873.82	11.47	-34.12	34.12	0.63	-0.63	1.25	36.00	288.58
36	1884.05	2.90	275.10	1883.38	11.50	-34.61	34.61	0.56	-0.31	9.09	36.47	288.38
37	1893.63	3.00	276.40	1892.93	11.55	-35.10	35.10	0.38	0.31	4.07	36.95	288.21
38	1903.23	3.20	278.30	1902.53	11.62	-35.62	35.62	0.70	0.63	5.94	37.46	288.07

Customer: PARAMOUNT RESOURCES LTD.
WellName: PARAMOUNT etal LIARD A01-60-00-123-15
Location: LAT 60°, 00', 04.641" LONG 123°, 15', 04.862"
PRECISION 373 , FILE # 9218P
DIR. DRILLER: DAVE GOIN. CORRECTION RUN
Vertical Section Calculated on: 270.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\WINDOWS\DESKTOP\WELL\9218-P1.SR3

#	Depth Meters	Inc Degree	Azimuth Degree	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m	BldRate /30m	TrnRate /30m	Cls Dist Meters	Cls Azi Degrees
Ext	1935.00	3.85	284.59	1934.24	12.01	-37.53	37.53	0.71	0.61	5.94	39.40	287.75

Closure is 39.4025 Meters on an azimuth of 287.7529

D: GEOLOGY

Geological Summary

GEOLOGICAL SUMMARY AND CONCLUSIONS

Paramount et al Liard A-01 located at 60° 00' 05" 123° 15' 05" was spudded on February 9, 1999 at 05:30 hours.

Liard A-01 was drilled to test the Lower Cretaceous Chinkeh sandstone for gas, and the Permian Fantasque and Mattson sands for the presence of oil or gas.

The well location was on the southeast end of a plunging structure characterized by the presence of a thrust fault.

A wellsite geologist was on location from spud to T.D. Sample collection began at surface. 2 sets of vialed samples were collected and washed for the National Energy Board and 1 set of vialed samples was collected and washed for Paramount Resources Ltd. Additional bagged samples were collected for the National Energy Board.

A Continental Laboratories Minipac 2100 gas detection system was set up and operated from spud to T.D.

A 311mm pilot hole was drilled to 501 metres. This hole was enlarged to 445mm to 503 metres and 38 joints of 339.7mm surface casing ran and landed at 503 metres.

The mud system was converted to a calcium chloride invert system and drilling 222mm hole commenced at 15:40 hrs., February 17, 1999.

The Scatter appeared to come in at 982 metres (-459). Prognosed top of the Scatter was 971 metres (-448). No significant shows were encountered in the Scatter.

The top of the Garbutt was tentatively picked at 1101 metres (-578). Prognosed top of the Garbutt was 1107 metres (-584).

The decision was made to attempt to core the Chinkeh/Triassic formation. The Chinkeh top was picked at 1330 metres (-807) based on a penetration rate change and sample description of a light medium gray salt and pepper, very fine grained, silty sandstone with streaks of abundant glauconite occasional dull yellow fluorescence with streaming milky white cut, and very rare pinpoint porosity. No increase in gas readings occurred. Core #1 was cut from 1333.0 metres to 1351.2 metres with 100% recovery. The core contained 3 thin sandstone units with a total thickness of 1.65 metres. Only rare pinpoint porosity was observed in the core.

The core recovery indicated the section may have thickened in this location and probably did not represent the Chinkeh/Triassic despite the similarity of the lithology. Drilling continued. The Chinkeh was re-picked from drilling rate and samples at 1410 metres. Prognosed top of the Chinkeh

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

was 1293 metres (-770). Penetration rate went from 8.1 minutes/metre to 10-13.1 minutes/metre and gas decreased from 8 units to 4-5 units. This suggested the Chinkeh was wet. Lithology was a medium gray salt and pepper very fine to fine grained, medium greenish gray in part, siliceous cemented, slightly dolomitic cemented, very silty, with abundant glauconite, and trace intergranular porosity. Isopaching up from the Chinkeh put the Garbutt at 1236 metres (-713).

The top of the Triassic was tentatively picked at 1425 metres (-902) Prognosed top of the Triassic was 1304 metres (-781). The Triassic was later re-picked at 1455 metres (-932) based on penetration rate change and lithology change from very fine grained sandstone to siltstone and brown shale.

The top of the Belloy was picked at 1515 metres (-992). Prognosed top of the Belloy was 1441 metres (-918). Lithology went from a medium dark gray, moderately dolomitic, very finely arenaceous siltstone to a brown, moderately dolomitic shale.

The top of the Fantasque was tentatively picked at 1584 metres based on the change in lithology from a medium dark gray, moderately dolomitic shale to a medium dark gray, very fine to fine grained, moderately argillaceous, moderately dolomitic sandstone with abundant glauconite. No porosity was observed in samples to 1654 metres.

Background gas readings were low in this hole. Background gas was 4 to 30 units. There were no large increases in gas readings from surface to 2030 metres. The gas detection system was function tested regularly with butane test gas. These tests indicated the system would respond to increases in gas in the mud system. A new gas detector with slightly greater sensitivity was installed on February 27th at 1654 metres prior to entering the Mattson formation.

At 1648 metres deviation increased to 3.50 degrees. It was decided to pull out of the hole at 1654 metres to run directional tools in order to control the deviation problem. When pulled the bit was undergauge and missing 2 cones. After a mill run, and several magnet runs the cones and bearing holders were recovered.

Drilling continued with directional tools. The Fantasque cherts displayed evidence of microvuggy, solution, and fracture porosity from 1656 metres to 1707 metres. There were occasional spotty oil shows in the interval 1679 metres to 1689 metres. Drilling rate varied considerably when directional tools were used and was often not reflective of lithology or porosity as weight on bit (WOB) and revolutions per minute (RPM) changed depending on whether pipe was rotating or sliding.

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

The Mattson was picked at 1721 metres (-1198) based on samples. Prognosed top of the Mattson was 1595 metres (-1072). The top of the Mattson was marked by a change from dark brown cherts and dark gray, very dolomitic siltstones of the Fantasque formation to medium brown gray, very fine to fine grained, calcareous, sandstone. There was scattered dull yellow fluorescence with yellowish white cut in samples from 1730 metres to 1739 metres. There was scattered intergranular porosity in this interval. Gas increased from 7 units to 31 units over the interval 1737 metres to 1739 metres.

A good drilling break occurred from 1743 metres to 1747 metres. Penetration rate went from 24.3 minutes/metre to 5.2 -13.6 minutes/metre; however, gas readings decreased from 10 units to 7 units. Lithology was a medium light gray, very fine to fine grained, very calcareous to dolomitic, siliceous cemented sandstone, with scattered dull yellow fluorescence with weak bluish cut, and good intergranular and intercrystalline porosity. The sand showed much evidence of recrystallization with quartz overgrowths and euhedral crystal development.

The interval from 1831 metres to 1833 metres produced a penetration rate change from 36.1 minutes/metre to 23-24.5 minutes/metre and a gas reading increase from 4 to 7-10 units. Over the interval 1835 metres to 1840 metres penetration rate increased from 36.5 minutes/metre to 10.2-21 minutes/metre and gas readings increased from 10 units to 13 units. Lithology was very fine to fine grained, siliceous cemented, moderately dolomitic sandstone with dull yellow fluorescence, slow bluish cut, and trace intergranular porosity.

From 1842 metres to 1846 metres the drilling rate increased from 17.3 to 4.0-11.5 minutes/metre. Gas readings increased from 8 to 10 units. Of note was the trip gas of 50 units after the trip at 1751 metres and several connection gases of 24-32 units after the penetration of this zone. This was the first evidence of trip or connection gas encountered in this hole. Lithology was a medium light gray salt and pepper to light brown gray, very fine to fine grained sandstone, siliceous cemented, slightly to moderately dolomitic cemented, with dull yellow fluorescence and bluish cut. The sample showed scattered intergranular porosity where sand is fine grained.

The interval 1867 metres to 1869 metres produced a drilling break from 55.4 minutes/metre to 19.3-14.5 minutes/metre. Gas increased slightly from 15 to 20 units. Lithology was a light medium gray, very fine grained sandstone, siliceous cemented, moderately dolomitic, with dull yellow fluorescence, bluish white cut, and traces of intergranular porosity.

The very argillaceous siltstone interbeds from 1853 metres to 1906 metres produced no drilling breaks or gas increases but exhibited scattered microvuggy and moldic porosity.

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

The interval from 1876 metres to 1892 metres showed a penetration rate increase from 33.5 minutes/metre to 7.7-24.7 minutes/metre. Gas readings did not increase and ran 10-18 units. The sandstone was usually very fine grained to fine grained, siliceous cemented, very slightly dolomitic, with a dull yellow fluorescence and bluish cut. The sands in this interval showed fair to good intergranular porosity in samples.

At 1908 metres to 1909 metres lithology changed from sandstone to light yellow brown, occasionally dolomitic, cryptocrystalline chert with no shows and no visible porosity. A good drilling break occurred from 1909 metres to 1913 metres with penetration rate change to 6.5-1.7 minutes/metre. There was no increase in gas readings over this interval and no indication of gas or water influx in the drilling fluid. Samples showed 10% medium gray salt and pepper, very fine to medium grained, sandstone with good intergranular porosity (10-15%) where fine to medium grained.

It was decided to test the above drilling break interval. DST #1, a bottom hole conventional test, was run over the interval 1906 metres to 1917 metres. Times were 10-3-15-60-60-120. The preflows produced strong air blows with no gas to surface. Real time indicated test tool plugged 5 minutes into the first preflow. The test continued with a initial shut in of 60 minutes, a valve open of 60 minutes, and a final shut in of 120 minutes. The valve open produced a weak air blow throughout. Field pressures were taken from Delta P real time charts as downhole recorder charts could not be field read due to tool plugging. The highest flow pressure recorded was the 2nd IPF pressure of 17982 kPa. The FF pressure was 175541 kPa. FSI pressure was 17574 kPa. The recovery was 660 metres of fluid. The top 108 metres of the recovery was invert and salty water. The bottom 552 metres was salty water. It was decided not to attempt another DST of this zone as Baker Atlas advised they had enough data to do a Horner plot. The test indicated this interval would produce salty water.

Drilling continued to 1935 metres. T.D. was called AT 05:30 hrs. on March 11, 1999.

Logs were run using Baker Atlas. Logger's T.D. was 1930.6 metres. The following logs were run: HDIL-GR (1928.1 metres to 502.0 metres); ZDL-CNL-GR-XYCAL (1929.2 metres to 502.0 metres); XMAC-GR (1925.0 metres to 502.0 metres). The loggers experienced some processing problems with the sonic tool; otherwise the equipment performed well. Logger's depths appeared to be 3 metres above driller's depths when comparisons were made with drilling breaks and lithology.

Based on log response and sample descriptions it was decided to run 5 straddle inflate drillstem tests.

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

DST #2 was run in the Mattson over the interval 1865 metres to 1892 metres. The preflows produced a weak air blow throughout and packer seat was lost 2 minutes into the ISI. The test was discontinued. Recovery was 215 metres of invert drilling fluid. Real time showed an IPF pressure of 241 kPa and a FPF pressure of 418 kPa. The ISI pressure at 2 minutes was 4220 kPa. Baker Atlas advised that there was enough information on the charts to do a Horner plot.

DST #3 was run in the Mattson over the interval 1819 metres to 1848 metres. Times were 10-60-120-240. The Preflow produced a weak air blow increasing to strong air blow in 30 seconds, gas to surface in 6.5 minutes, and a lazy 3 metre flare on a 6.35mm choke. IPF pressure was 534 kPa and FPF pressure was 855 kPa. ISI pressure was 15044 kPa. A VO of 120 minutes produced a lazy 1.5 metre flare through a 3.175mm choke. 60 kPa of pressure at the floor manifold indicated a flow of 214m3/day (7557ft3/day). Recovery was 100 metres of gassy invert and 100 metres of gassy water cut invert. A sample caught just above the tool was water with a salinity of 34000ppm CL. The test indicated a gas reservoir which produces water.

DST #4 was run in the Mattson over the interval 1781 metres to 1804.4 metres. Times were 10-60-180-360. The preflow produced a WAB to FAB in 10 minutes with no gas to surface. The VO produced a strong initial surge followed by a WAB. As the WAB increased to a FAB the VO time was increased to 180 minutes. There was no gas to surface. IPF pressure was 253 kPa and FPF pressure was 338 kPa. IF pressure on VO was 239 kPa with FF pressure of 297 kPa. ISI pressure was 763 kPa and FSI pressure was 2391 after 360 minutes. Recovery was 10 metres of gassy invert. The test indicated a low permeability reservoir.

DST #5 was run in the Chinkeh over the interval 1405 metres to 1429 metres. Times were 10-60-120-240. The preflow and valve opened both produced a very weak air blow with no gas to surface. ISI pressure was 10900 kPa. FSI pressure was 10903 kPa. IF pressure on VO was 283 kPa and FF pressure was 652 kPa. Recovery was 45 metres of invert. The test indicated a low permeability reservoir.

DST #6 was run in the Fantasque over the interval 1668 metres to 1698 metres. A 10 minute preflow produced a WAB increasing to SAB in 2.5 minutes. There was no gas to surface. After an ISI of 60 minutes the tool was opened for 120 minutes. VO produced a WAB increasing to SAB in 2 minutes with GTS in 30 minutes. The gas flow was TSTM. IPF pressure was 610 kPa with a FPF pressure of 1075 kPa. ISI pressure was 15104 kPa. IF pressure was 1239 kPa and FF pressure 5134 kPa. FSI pressure was 15071 kPa. The fluid recovery of 490 metres consisted of 90 metres of gassy invert, 200 metres of gassy invert slightly contaminated with salt water, and 200 metres of gassy salt water (50000ppm Cl). The test indicated a permeable reservoir which would produce gas and salt water

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

The decision was made to drill deeper to 2000 metres to evaluate the next few Mattson sands.

A drilling break from 49 minutes/metre to 4-5.6 minutes/metre occurred over the interval 1955 metres to 1962 metres. Gas readings increased from 8 to 21 units and samples indicated a light yellow brown, very fine to fine grained sandstone, with scattered good intergranular porosity

A penetration rate change from 46 minutes/metre to 25 minutes/metre over the interval 1999 metres to 2000 metres produced a gas increase from 18 to 42 units. Samples showed a trace of fine to medium grained sandstone with intergranular porosity.

Rather than stop drilling at 2000 metres the decision was made to drill ahead to make enough overhole to show the above sandstone on logs.

Several additional drilling breaks with small gas increases occurred from 2000 metres to 2030 metres. From 2030 metres to 2031 metres the penetration rate went from 41.6 minutes/metre to 11.7 minutes/metre. Gas readings increased from 18 units to 172 units. Samples indicated a very fine to fine grained sandstone with dull yellow fluorescence, rare milky white cut, and trace of intergranular porosity. The magnitude of the gas detector response was larger than had previously been encountered in the hole and the decision was made to continue drilling to ensure this zone showed up on logs. Background gas went from 18 to 20 units before penetration of the above zone to 45 to 55 units. Connection gas readings als appeared for the first time in the hole.

At 2044 metres to 2045 metres penetration rate went from 38.0 minutes/metre to 25 minutes/metre and gas increased from 43 to 113 units. Lithology was a very fine to fine grained sandstone with streaks of fine to medium grained with intergranular porosity.

Drilling was stopped and TD called at 2046 metres on March 19, 1999 at 20:20 hrs. because of the number of hours on the bit and drop in penetration rate.

The following logs were run using Baker Atlas equipment. Logger's TD was 2044.8 metres. The following logs were run: HDIL-GR (2042.3 metres to 1925.0 metres); ZDL-CNL-GR-XYCAL (2043.7 metres to 1925.0 metres); MAC-GR-CAL (2041.2 metres to 1925.0 metres).

Based on log response, sample description, and gas detector response several zones appeared to be candidates for testing.

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

DST #7, a bottom hole inflate, was run over the interval 2028 metres to 2046 metres. A preflow of 10 minutes produced a WAB increasing to SAB in 30 seconds then decreasing to FAB to end of PF with no gas to surface. IPF pressure was 452 kPa. FPF pressure was 611 kPa. An ISI of 60 minutes produced an ISI pressure of 2732 kPa. VO was 120 minutes with a WAB increasing to SAB in 30 seconds to a SAB for 4 minutes then decreasing to FAB to end of VO. There was no gas to surface. IF pressure was 376 kPa. FF pressure was 735 kPA. A FSI of 240 minutes produced a FSI pressure of 4693 kPa.

DST #8 over the interval 1955 metres to 1965 metres was declared a misrun due to blown bottom packer. DST #9 over the same interval produced a WAB on preflow with NGTS. The packer failed at 8 minutes into the PF. IPF pressure was 581 kPa and FPF pressure was 2811 kPa.

The decision was made to run 177.8mm casing to the bottom of the hole.

FORMATION TOPS (m)

PERIOD GROUP FORMATION (LOCAL UNITS)	PROGNOSIS (subsea)	 (KB)	SAMPLES (driller)	LOGS (KB)	 (subsea)
Lower Cretaceous Lepine					
Scatter	- 448	971	1105	1099	- 576
Garbutt	- 584	1107	1236	1235	- 712
Chinkeh	- 770	1293	1410	1407	- 884
Triassic	- 781	1304	1455?	1447?	- 924
Permian Belloy	- 918	1441	1515	1517	- 994
Fantasque	- 956	1479	1584	1571	-1048
Mattson	-1072	1595	1721	1721	-1198
Mississippian Flett	-1807	2330			
T.D.	-1827	2350	2046	2045	-1522

SAMPLE DESCRIPTIONS: (See also - Hydrocarbon Well Log attached)

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
0 - 20	**CLAYSTONE** - medium gray, occasional very fine to coarse quartz grains, very soft, abundant aragonite, moderately silty;
20 - 25	**SANDSTONE** - medium gray to medium dark gray, very fine grained, subangular to angular, well sorted, abundant aragonite, trace Pelecypod, no shows, no visible porosity, moderately silty, moderately calcareous;
25 - 30	**SILTSTONE** - medium dark gray, non calcareous, abundant aragonite, tight, very argillaceous;
30 - 35	**SANDSTONE** - medium gray to medium dark gray, very fine grained, subangular to angular, well sorted, abundant aragonite, trace Pelecypod, no shows, no visible porosity, moderately silty, moderately calcareous;
35 - 40	**CLAYSTONE** - as above, abundant aragonite, very fine to finely arenaceous in part, very silty;
40 - 45	**SILTSTONE** - as above, very fine grained in part, very argillaceous;
45 - 65	**CLAYSTONE** - medium dark gray, scattered aragonite, soft, very silty;
65 - 90	**CLAYSTONE** - soft to moderately consolidated, as above, very silty, rare pyrite;
90 - 95	**SANDSTONE** - greenish gray, fine grained to medium grained, subangular to subrounded, well sorted, rare coarse grains, clay supported in part and grading to sandy claystone in part, no shows, tight, very argillaceous, slightly calcareous;
95 - 100	**CLAYSTONE** - as above, very fine to medium grained in part, trace rounded varicolored chert granules and pebbles, very silty;
100 - 105	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, rare silt size pyrite, moderately calcareous in part, rare rounded chert pebbles, no shows, no visible porosity, very silty, very argillaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
105 - 109	**CLAYSTONE** - medium dark gray, as above, rare trace rounded chert pebbles, grading to medium gray shale;
109 - 149	**CLAYSTONE** - medium gray to medium dark gray, non calcareous, soft, very silty;
149 - 166	**CLAYSTONE** - medium gray to medium dark gray, non calcareous, soft, very silty, increasingly indurated and shaley;
166 - 169	**CONGLOMERATE** - varicolored, very coarse grained, rounded, poorly sorted, trace intergranular porosity, clay matrix in part, medium grained sand matrix in part, siliceous cemented, slightly pyritic, kaolin infilling in part;
169 - 179	**SANDSTONE** - medium gray, very fine grained, subangular to angular, well sorted, occasionally fine grained, siltstone laminae, non calcareous, rare conglomeritic streaks, very silty, very argillaceous;
179 - 183	**SILTSTONE** - medium dark gray, non calcareous, grading to silty shale, trace medium brown gray slightly waxy shale laminae, very argillaceous;
183 - 186	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained and some coarse grained, angular to subrounded, moderately sorted, no fluorescence, no cut, quartz, chert, rock fragments, trace varicolored rounded chert granules and pebbles, kaolin infilling in part, intergranular porosity, slightly argillaceous;
186 - 212	**CONGLOMERATE** - light medium gray, occasionally dark gray, poorly sorted, no fluorescence, no cut, varicolored rounded chert granules and pebbles in a medium to coarse grained sand matrix, slightly siliceous cemented, intergranular porosity in part, slightly pyritic;
212 - 214	**SANDSTONE** - medium gray, fine grained to coarse grained, subangular to angular, moderately sorted, no shows, tight, very argillaceous, moderately silty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
214 - 219	**CONGLOMERATE** - light medium gray, occasionally dark gray, poorly sorted, no fluorescence, no cut, varicolored rounded chert granules and pebbles in a medium to coarse grained sand matrix, slightly siliceous cemented, intergranular porosity in part, slightly pyritic;
219 - 220	**SILTSTONE** - medium gray, as above, non calcareous, very argillaceous;
220 - 224	**SANDSTONE** - medium gray, fine grained to medium grained, subangular to angular, well sorted, grading to very argillaceous siltstone, no shows, no visible porosity, very silty, very argillaceous;
224 - 227	**SHALE** - medium light gray, medium gray to medium dark gray, soft, non calcareous, silty in part, scattered carbonaceous material;
227 - 228	**SILTSTONE** - medium gray, as above, very argillaceous;
228 - 229	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, non calcareous, micaceous, moderately silty, very argillaceous;
229 - 230	**SILTSTONE** - medium gray, as above, very argillaceous;
230 - 232	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, non calcareous, micaceous, moderately silty, very argillaceous;
232 - 236	**SILTSTONE** - medium gray, as above, very argillaceous;
236 - 240	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, non calcareous, micaceous, moderately silty, very argillaceous;
240 - 243	**SHALE** - light greenish gray, light medium gray, micromicaceous, non calcareous, moderately bentonitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
243 - 246	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subangular to angular, well sorted, moderately consolidated, micaceous, kaolin infilling in part, no shows, very fine to fine grained and silty in part, scattered intergranular porosity, slightly argillaceous;
246 - 247	**SILTSTONE** - medium gray, as above, very argillaceous;
247 - 252	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subangular to angular, well sorted, moderately consolidated, micaceous, kaolin infilling in part, no shows, very fine to fine grained and silty in part, scattered intergranular porosity, slightly argillaceous;
252 - 253	**SILTSTONE** - medium gray, as above, very argillaceous;
253 - 259	**SANDSTONE** - medium light gray salt and pepper, medium grained to coarse grained, subangular to angular, well sorted, no fluorescence, no cut, conglomeritic in part, slightly siliceous cemented, kaolin infilling in part, intergranular porosity;
259 - 267	**CONGLOMERATE** - light medium gray, poorly sorted, no fluorescence, no cut, rounded varicolored chert pebbles in matrix of medium to coarse grained sand, intergranular porosity;
267 - 272	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, micaceous, non calcareous, very silty and grading to siltstone, very argillaceous;
272 - 275	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, no visible porosity, very silty, very argillaceous;
275 - 280	**SILTSTONE** - medium light gray to medium dark gray, no shows, tight, very argillaceous;
280 - 286	**SILTSTONE** - medium dark gray, as above, very shaley, very argillaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
286 - 291	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, no shows, tight, very silty, very argillaceous;
291 - 292	**SANDSTONE** - medium light gray, very fine grained to fine grained, subangular to angular, well sorted, kaolin infilling in part, very silty, very argillaceous;
292 - 294	**SILTSTONE** - medium dark gray, as above, very shaley, very argillaceous;
294 - 298	**SHALE** - medium brown gray, carbonaceous material, moderately bentonitic, moderately silty;
298 - 299	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, micaceous, no shows, tight, very silty, very argillaceous;
299 - 300	**SILTSTONE** - medium dark gray, as above, very shaley, very argillaceous;
300 - 301	**SHALE** - medium brown gray, carbonaceous material, moderately bentonitic, moderately silty;
301 - 302	**SILTSTONE** - medium dark gray, as above, very shaley, very argillaceous;
302 - 304	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, kaolin infilling in part, micaceous, no shows, no visible porosity, very silty, very argillaceous;
304 - 310	**SILTSTONE** - medium light gray salt and pepper to medium light gray, very finely arenaceous, tight, very argillaceous;
310 - 315	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, micaceous, kaolin infilling in part, non to slightly calcareous, no shows, tight, very silty, very argillaceous;
315 - 322	**SILTSTONE** - medium dark gray, as above, very argillaceous, very shaley;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
322 - 323	**SHALE** - as above;
323 - 324	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, no shows, tight, very silty, very argillaceous;
324 - 326	**SHALE** - as above;
326 - 330	**SANDSTONE** - light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, no fluorescence, no cut, abundant kaolin infilling in part, very calcareous cemented, trace dark gray carbonaceous shale laminae, trace intergranular porosity;
330 - 333	**COAL** - black, vitreous;
333 - 334	**SHALE** - dark gray, as above, non calcareous, moderately carbonaceous;
334 - 335	**SILTSTONE** - medium dark gray, as above, very argillaceous;
335 - 337	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, w sorted, abundant kaolin in part, no shows, no visible porosity, very argillaceous, moderately silty;
337 - 340	**SILTSTONE** - medium dark gray, as above, very argillaceous;
340 - 344	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, as above, trace carbonaceous laminae, very argillaceous, moderately silty;
344 - 346	**SHALE** - dark gray, as above, non calcareous, moderately carbonaceous;
346 - 349	**SILTSTONE** - as above, scattered carbonaceous material, light gray bentonitic shale and dark gray shaley carbonaceous laminae, very argillaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
482 - 483	**SANDSTONE** - medium light gray to light medium gray, very fine grained to fine grained, subangular to angular, well sorted, occasional carbonaceous laminae, very silty in part, no visible porosity, very argillaceous;
483 - 492	**SILTSTONE** - medium dark gray, as above, with interbeds of light medium gray very fine grained very silty very argillaceous sand, very argillaceous;
492 - 494	**SANDSTONE** - medium light gray to light medium gray, very fine grained to fine grained, subangular to angular, well sorted, very to moderately argillaceous, kaolin infilling in part, as above, very silty;
494 - 501	**SILTSTONE** - medium dark gray, as above, with interbeds and laminae of very fine to fine grained very to moderately argillaceous very silty sand, very argillaceous;
501 - 503	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
503 - 504	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, non calcareous, very argillaceous, very silty;
504 - 508	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
508 - 509	**SHALE** - medium dark gray, as above, very silty;
509 - 510	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, non calcareous, very argillaceous, very silty;
510 - 519	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
519 - 527	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, moderately dolomitic cemented, moderately silty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
527 - 531	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
531 - 536	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, non calcareous, tight, moderately argillaceous, moderately silty;
536 - 541	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
541 - 542	**SHALE** - medium dark gray, non calcareous, very silty;
542 - 544	**SILTSTONE** - medium dark gray, as above, very argillaceous;
544 - 553	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, as above, slightly calcareous in part, rare glauconite, trace carbonaceous material, with siltstone interbeds, tight, very argillaceous, very silty;
553 - 560	**SILTSTONE** - medium dark gray, grading to silty shale in part, with non to slightly calcareous very fine grained sandstone laminae, very argillaceous;
560 - 564	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, as above, slightly calcareous in part, rare glauconite, trace carbonaceous material, with siltstone interbeds, tight, very argillaceous, very silty;
564 - 570	**SHALE** - dark gray, blocky, abundant silty laminae, soft, non calcareous, very silty;
570 - 573	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, as above, slightly calcareous in part, rare glauconite, trace carbonaceous material, with siltstone interbeds, tight, very argillaceous, very silty;
573 - 580	**SILTSTONE** - dark gray, grading to silty shale, with sandstone laminae, tight, very argillaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
580 - 583	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, as above, slightly calcareous in part, rare glauconite, trace carbonaceous material, with siltstone interbeds, tight, very argillaceous, very silty;
583 - 586	**SILTSTONE** - dark gray, grading to silty shale, with sandstone laminae, tight, very argillaceous;
586 - 591	**SHALE** - dark gray, non calcareous, very silty;
591 - 592	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, non to slightly calcareous, tight, very argillaceous, very silty;
592 - 594	**SHALE** - dark gray, non calcareous, very silty;
594 - 599	**SILTSTONE** - grading to silty shale, with thin very fine grained sandstone interbeds, very argillaceous;
599 - 613	**SILTSTONE** - medium dark gray, grading to silty shale, very fine grained in part, very argillaceous;
613 - 618	**SHALE** - dark gray, trace fish scales, grading to shaley siltstone, non calcareous, very silty;
618 - 620	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, non to very slightly calcareous, tight, very argillaceous, very silty;
620 - 624	**SILTSTONE** - medium dark gray, grading to silty shale, very fine grained in part, very argillaceous;
624 - 628	**SHALE** - dark gray, trace fish scales, grading to shaley siltstone, non calcareous, very silty;
628 - 637	**SILTSTONE** - medium dark gray, grading to silty shale, very fine grained in part, very argillaceous;
637 - 643	**SHALE** - dark gray, trace fish scales, grading to shaley siltstone, non calcareous, very silty;
643 - 646	**SILTSTONE** - medium dark gray to dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
646 - 647	**SHALE** - as above;
647 - 659	**SILTSTONE** - medium dark gray to dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;
659 - 662	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
662 - 665	**SILTSTONE** - dark gray, trace fish scales, shaley, as above, non calcareous, very argillaceous, moderately carbonaceous;
665 - 682	**SILTSTONE** - dark gray, non calcareous, very argillaceous, moderately carbonaceous;
682 - 683	**SILTSTONE** - as above, and medium brown slightly dolomitic siltstone;
683 - 685	**SHALE** - as above;
685 - 688	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty;
688 - 693	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
693 - 702	**SILTSTONE** - light medium gray to medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
702 - 713	**SILTSTONE** - as above, shaley in part, very argillaceous, moderately carbonaceous;
713 - 719	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;
719 - 722	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
722 - 724	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
724 - 725	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
725 - 727	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;
727 - 729	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
729 - 731	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;
731 - 733	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
733 - 735	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;
735 - 736	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
736 - 743	**SILTSTONE** - light medium gray, grading to very fine grained very silty very argillaceous sandstone, very argillaceous;
743 - 745	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;
745 - 747	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
747 - 748	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, moderately calcareous;
748 - 750	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
750 - 752	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, moderately calcareous;
752 - 753	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;
753 - 756	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
756 - 757	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, very argillaceous, very silty, moderately calcareous, trace glauconite;
757 - 759	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
759 - 760	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;
760 - 762	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
762 - 764	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, very argillaceous, very silty, moderately calcareous, trace glauconite;
764 - 765	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;
765 - 768	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, very argillaceous, very silty, moderately calcareous, trace glauconite;
768 - 770	**SILTSTONE** - light medium gray, grading to very fine grained silty sand, moderately argillaceous, very sandy, moderately calcareous;
770 - 772	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
772 - 780	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
780 - 781	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, moderately calcareous;
781 - 782	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;
782 - 785	**SILTSTONE** - light to medium dark gray, carbonaceous laminae, grading to very silty shale, very argillaceous, moderately carbonaceous;
785 - 786	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;
786 - 787	**SILTSTONE** - light to medium dark gray, carbonaceous laminae, grading to very silty shale, very argillaceous, moderately carbonaceous;
787 - 793	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, moderately calcareous;
793 - 795	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;
795 - 800	**SILTSTONE** - light to medium dark gray, carbonaceous laminae, grading to very silty shale, very argillaceous, moderately carbonaceous;
800 - 803	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;
803 - 806	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
806 - 808	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
808 - 814	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
814 - 816	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
816 - 818	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
818 - 819	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
819 - 820	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
820 - 822	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
822 - 828	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
828 - 832	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
832 - 837	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
837 - 841	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
841 - 845	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
845 - 846	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
846 - 849	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
849 - 850	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
850 - 857	**SILTSTONE** - medium dark gray, trace very fine grained moderately calcareous glauconitic sandstone laminae, very argillaceous, moderately carbonaceous;
857 - 861	**SILTSTONE** - as above, increasingly shaley, very argillaceous, moderately carbonaceous;
861 - 864	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
864 - 865	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
865 - 866	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
866 - 867	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
867 - 868	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
868 - 869	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
869 - 871	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
871 - 875	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
875 - 878	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
878 - 879	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
879 - 883	**SILTSTONE** - medium dark gray, as above, trace very fine grained sandstone laminae with dull yellow fluorescence and slow bluish cut, tight, very argillaceous;
883 - 891	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
891 - 892	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
892 - 895	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, trace glauconite;
895 - 901	**SILTSTONE** - medium dark gray, very calcareous streaks, trace very fine grained sandstone laminae, very shaley, very argillaceous, moderately carbonaceous;
901 - 903	**SANDSTONE** - medium dark gray, very fine grained, subangular to angular, well sorted, grading to very finely arenaceous siltstone in part, very argillaceous, very silty, moderately carbonaceous;
903 - 904	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
904 - 908	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;
908 - 923	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
923 - 924	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
924 - 926	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
926 - 929	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
929 - 933	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
933 - 934	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
934 - 935	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;
935 - 937	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
937 - 938	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
938 - 940	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
940 - 945	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;
945 - 946	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
946 - 947	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
947 - 949	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;
949 - 951	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
951 - 957	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;
957 - 958	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
958 - 965	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;
965 - 966	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
966 - 970	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;
970 - 971	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
971 - 974	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;
974 - 975	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
975 - 981	**SILTSTONE** - medium dark gray, non calcareous, very shaley in part, very argillaceous, moderately carbonaceous;
981 - 988	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, trace mica, very calcareous cemented, no shows, no visible porosity, moderately argillaceous, very silty, trace glauconite;
988 - 994	**SANDSTONE** - as above, very fine grained, subangular to angular, well sorted, trace glauconite, very silty and grading to very finely arenaceous siltstone, tight, moderately argillaceous, slightly calcareous;
994 - 998	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
998 - 1005	**SANDSTONE** - as above, very fine grained, subangular to angular, well sorted, trace glauconite, very silty and grading to very finely arenaceous siltstone, tight, moderately argillaceous, slightly calcareous;
1005 - 1014	**SILTSTONE** - as above, very finely arenaceous in part and very fine grained sandstone laminae and interbeds, very argillaceous, moderately carbonaceous;
1014 - 1015	**SANDSTONE** - as above, subangular to angular, well sorted, non calcareous, tight, very argillaceous, very silty;
1015 - 1018	**SILTSTONE** - medium dark gray, occasional very fine grained sandstone laminae, very argillaceous, moderately carbonaceous;
1018 - 1020	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, no shows, tight, very argillaceous, very silty;
1020 - 1021	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1021 - 1024	**SILTSTONE** - medium dark gray, occasional very fine grained sandstone laminae, very argillaceous, moderately carbonaceous;
1024 - 1025	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1025 - 1038	**SILTSTONE** - medium dark gray, occasional very fine grained very silty moderately calcareous sandstone laminae, very argillaceous, moderately carbonaceous;
1038 - 1040	**SILTSTONE** - as above, interbed with dark gray moderately carbonaceous non calcareous shale, very argillaceous, moderately carbonaceous;
1040 - 1041	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately silty, moderately carbonaceous;
1041 - 1042	**SILTSTONE** - as above, very argillaceous, moderately argillaceous, moderately sandy;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1042 - 1043	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately silty, moderately carbonaceous;
1043 - 1045	**SILTSTONE** - as above;
1045 - 1046	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1046 - 1050	**SILTSTONE** - as above;
1050 - 1051	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1051 - 1056	**SILTSTONE** - as above;
1056 - 1061	**SILTSTONE** - as above, very finely arenaceous, very argillaceous, moderately carbonaceous;
1061 - 1063	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1063 - 1064	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, rare glauconite, non calcareous, tight, moderately argillaceous, very silty;
1064 - 1065	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous, moderately sandy;
1065 - 1068	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, no shows, tight, moderately argillaceous, very silty, moderately calcareous;
1068 - 1069	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous, moderately sandy;
1069 - 1070	**SHALE** - as above, moderately carbonaceous;
1070 - 1071	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, no shows, tight, moderately argillaceous, very silty, moderately calcareous;
1071 - 1072	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous, moderately sandy;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1072 - 1075	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, no shows, tight, moderately argillaceous, very silty, moderately calcareous;
1075 - 1079	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
1079 - 1082	**SANDSTONE** - light medium gray to medium gray, very fine grained, subangular to angular, well sorted, trace to moderately glauconitic, non calcareous, tight, very argillaceous, very silty;
1082 - 1084	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
1084 - 1085	**SHALE** - as above, moderately carbonaceous;
1085 - 1090	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
1090 - 1093	**SILTSTONE** - increasingly argillaceous and shaley, moderately carbonaceous;
1093 - 1095	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1095 - 1096	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous;
1096 - 1099	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, non to moderately calcareous cemented, tight, moderately argillaceous, very silty;
1099 - 1101	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous;
1101 - 1105	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
Scatter	1105m Sample 1099m Log

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1105 - 1118	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no fluorescence, slow bluish cut, trace glauconite, non to moderately calcareous, no visible porosity, very silty, slightly carbonaceous;
1118 - 1119	**SILTSTONE** - medium dark gray, very fine, arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1119 - 1121	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1121 - 1122	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1122 - 1124	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1124 - 1126	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1126 - 1128	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1128 - 1131	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1131 - 1133	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1133 - 1138	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no fluorescence, very slow bluish cut, trace glauconite, slightly calcareous, no visible porosity, very argillaceous, very silty;
1138 - 1140	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1140 - 1142	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1142 - 1144	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1144 - 1147	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, increasingly silty and grading to siltstone, very argillaceous;
1147 - 1151	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1151 - 1152	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, increasingly silty and grading to siltstone, very argillaceous
1152 -1153	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1153 - 1156	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, increasingly silty and grading to siltstone, very argillaceous;
1156 - 1158	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1158 - 1159	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1159 - 1161	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1161 - 1163	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1163 - 1166	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no fluorescence, very slow bluish cut, trace glauconite, slightly calcareous, no visible porosity, very argillaceous, very silty;
1166 - 1167	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1167 - 1168	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1168 - 1169	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no fluorescence, very slow bluish cut, trace glauconite, slightly calcareous, no visible porosity, very argillaceous, very silty;
1169 - 1170	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1170 - 1172	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1172 - 1174	**SANDSTONE** - very fine grained, subangular to angular, well sorted, increasingly silty and grading to siltstone, very argillaceous;
1174 - 1175	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1175 - 1177	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1177 - 1178	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1178 - 1179	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1179 - 1183	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1183 - 1191	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, trace glauconite, no shows, tight, moderately argillaceous, very silty;
1191 - 1192	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1192 - 1193	**SHALE** - dark gray, as above, very silty in part, moderately carbonaceous;
1193 - 1196	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, trace dull yellow fluorescence, slow bluish cut, non to very slightly calcareous, trace glauconite, no visible porosity, moderately argillaceous, very silty;
1196 - 1197	**SHALE** - dark gray, as above, very silty in part, moderately carbonaceous;
1197 - 1198	**SANDSTONE** - gray brown, very fine grained, subangular to angular, well sorted, dull yellow fluorescence, streaming bluish white cut, non to moderately calcareous, no visible porosity, very argillaceous, very silty;
1198 - 1201	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, trace glauconite, no shows, tight, moderately argillaceous, very silty;
1201 - 1202	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1202 - 1213	**SANDSTONE** - light medium gray salt and pepper, medium gray, gray brown, very fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence and bluish white cut where gray brown, slightly calcareous in part, scattered glauconite, slightly to moderately argillaceous, no visible porosity to rare pinpoint porosity, very silty, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1213 - 1215	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1215 - 1216	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, trace dull yellow fluorescence, slow bluish cut, non to very slightly calcareous, trace glauconite, no visible porosity, moderately argillaceous, very silty;
1216 - 1218	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1218 - 1220	**SANDSTONE** - gray brown, very fine grained, subangular to angular, well sorted, dull yellow fluorescence, streaming bluish white cut, non to moderately calcareous, no visible porosity, very argillaceous, very silty;
1220 - 1223	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1223 - 1232	**SANDSTONE** - light medium gray salt and pepper, medium gray, gray brown, very fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence and bluish white cut where gray brown, slightly calcareous in part, scattered glauconite, slightly to moderately argillaceous, no vis porosity to rare pinpoint porosity, very silty, moderately carbonaceous;
1232 - 1233	**SHALE** - dark gray, as above, very silty in part, moderately carbonaceous;
1233 - 1236	**SANDSTONE** - light medium gray to medium gray salt and pepper, very fine grained, subangular to angular, well sorted, as above, non visible porosity, moderately argillaceous, very silty;
Garbutt	1236m Sample 1235m Log
1236 - 1237	**SILTSTONE** - brown gray, dull yellow fluorescence, blue white cut, as above, tight, very argillaceous;
1237 - 1249	**SILTSTONE** - dark gray, shaley in part, very finely arenaceous in part, tight, very argillaceous, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1249 - 1254	**SILTSTONE** - dark gray, very shaley in part, non calcareous, very argillaceous, moderately carbonaceous;
1254 - 1255	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1255 - 1256	**SILTSTONE** - dark gray, very shaley in part, non calcareous, very argillaceous, moderately carbonaceous;
1256 - 1257	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1257 - 1258	**SILTSTONE** - dark gray, very shaley in part, non calcareous, very argillaceous, moderately carbonaceous;
1258 - 1265	**SILTSTONE** - dark gray to medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1265 - 1266	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1266 - 1267	**SILTSTONE** - dark gray to medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1267 - 1269	**SANDSTONE** - medium dark gray to dark gray, very fine grained, subangular to angular, well sorted, grading to very finely arenaceous sand, tight, very argillaceous, very silty;
1269 - 1277	**SILTSTONE** - dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;
1277 - 1280	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
1280 - 1281	**SILTSTONE** - dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;
1281 - 1283	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
1283 - 1284	**SILTSTONE** - dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1284 - 1325	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
1325 - 1330	**SILTSTONE** - dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;
1330 - 1333	**SANDSTONE** - light medium gray salt and pepper to medium gray, very fine grained, subangular to angular, well sorted, occasional dull yellow fluorescence with streaming milky white cut, slightly to moderately argillaceous, non to moderately calcareous, scattered carbonaceous material, rare pinpoint porosity, very silty, scattered glauconite;
1333 - 1351	**CORE #1 SEE DETAILED CORE DESCRIPTION**
1351 - 1359	**SHALE** - very dark gray, non calcareous, occasional laminae of medium gray to medium brown gray very fine grained very argillaceous silty sandstone, very carbonaceous;
1359 - 1375	**SHALE** - very dark gray, non calcareous, medium gray and silty in part, grading to very argillaceous silt, very carbonaceous;
1375 - 1406	**SHALE** - very dark gray, non calcareous, very carbonaceous;
1406 - 1410	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
Chinkeh	1410m Sample 1407m Log
1410 - 1413	**SANDSTONE** - medium gray salt and pepper, medium green gray, very fine grained to fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, slightly siliceous cemented, slightly dolomitic cemented, trace intergranular porosity, very silty, abundant glauconite;
1413 - 1414	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1414 - 1422	**SANDSTONE** - medium gray salt and pepper, medium green gray, very fine grained to fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, slightly siliceous cemented, slightly dolomitic cemented, trace intergranular porosity, very silty, abundant glauconite;
1422 - 1425	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
1425 - 1428	**SANDSTONE** - medium gray salt and pepper, medium green gray, very fine grained to fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, slightly siliceous cemented, slightly dolomitic cemented, trace intergranular porosity, very silty, abundant glauconite;
1428 - 1430	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, slightly siliceous cemented, slightly dolomitic cemented, cut as above, no visible porosity, very silty, scattered glauconite;
1430 - 1432	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
1432 - 1434	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, slightly siliceous cemented, increasingly dolomitic cemented, cut as above, no visible porosity, trace glauconite;
1434 - 1435	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
1435 - 1436	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, slightly siliceous cemented, slightly dolomitic cemented, cut as above, no visible porosity, very silty, scattered glauconite;
1436 - 1438	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1438 - 1440	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, slightly siliceous cemented, slightly dolomitic cemented, cut as above, no visible porosity, very silty, scattered glauconite;
1440 - 1443	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
1443 - 1452	**SANDSTONE** - medium light gray, light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence, slow bluish cut, slightly to moderately dolomitic, rarely fine grained, no observable porosity, very silty;
1452 - 1453	**SHALE** - as above;
1453 - 1455	**SANDSTONE** - very fine grained, subangular to angular, well sorted, very silty, moderately dolomitic, occasional glauconite;
Triassic(?)	1455m Sample 1447m Log
1455 - 1456	**SHALE** - as above;
1456 - 1457	**SILTSTONE** - medium light gray to light medium gray, slightly argillaceous, very finely arenaceous in part, slightly carbonaceous in part;
1457 - 1458	**SANDSTONE** - very fine grained, subangular to angular, well sorted, very silty, moderately dolomitic, occasional glauconite;
1458 - 1462	**SILTSTONE** - medium dark gray, very dolomitic, moderately argillaceous;
1462 - 1464	**SHALE** - brown, blocky, very dolomitic;
1464 - 1468	**SILTSTONE** - medium dark gray, moderately dolomitic;
1468 - 1469	**SHALE** - brown, blocky, very dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1469 - 1470	**SANDSTONE** - medium brown gray, light medium gray, very fine grained to fine grained, subangular to angular, well sorted, trace dull yellow fluorescence with slow bluish cut, moderately to very dolomitic cemented, no visible porosity, very silty;
1470 - 1471	**SHALE** - brown, blocky, very dolomitic;
1471 - 1472	**SILTSTONE** - medium dark gray, moderately dolomitic;
1472 - 1473	**SHALE** - brown, blocky, very dolomitic;
1473 - 1474	**SANDSTONE** - medium brown gray, light medium gray, very fine grained to fine grained, subangular to angular, well sorted, trace dull yellow fluorescence with slow bluish cut, moderately to very dolomitic cemented, no visible porosity, very silty;
1474 - 1475	**SILTSTONE** - medium dark gray, moderately dolomitic;
1475 - 1476	**SANDSTONE** - medium brown gray, light medium gray, very fine grained to fine grained, subangular to angular, well sorted, trace dull yellow fluorescence with slow bluish cut, moderately to very dolomitic cemented, no visible porosity, very silty;
1476 - 1479	**SHALE** - brown, medium to medium dark gray, slightly to moderately dolomitic;
1479 - 1485	**SILTSTONE** - medium dark gray, occasional interbeds of very fine grained very dolomitic cemented sandstone with no fluorescence and slow bluish cut, very dolomitic;
1479 - 1485	**SILTSTONE** - medium dark gray, interbedded with brown and medium dark gray dolomitic shales, very argillaceous, moderately dolomitic;
1485 - 1488	**SILTSTONE** - medium dark gray, moderately dolomitic;
1488 - 1489	**SANDSTONE** - very fine grained, subangular to angular, well sorted, trace dull yellow fluorescence with slow bluish cut, scattered carbonaceous material, tight, very dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1489 - 1490	**SILTSTONE** - medium dark gray, moderately dolomitic;
1490 - 1491	**SHALE** - medium dark gray, slightly dolomitic, slightly silty, brown and moderately dolomitic in part;
1491 - 1493	**SILTSTONE** - medium dark gray, moderately dolomitic;
1493 - 1494	**SANDSTONE** - very fine grained, subangular to angular, well sorted, trace dull yellow fluorescence and slow bluish cut, scattered carbonaceous material, tight, very dolomitic;
1493 - 1494	**SANDSTONE** - medium brown gray, light medium gray, very fine grained to fine grained, subangular to angular, well sorted, trace dull yellow fluorescence, slow bluish cut, moderately to very dolomitic cemented, no visible porosity, very silty;
1494 - 1498	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with slow bluish cut, moderately to very dolomitic, no visible porosity, very silty;
1498 - 1500	**SILTSTONE** - as above, moderately dolomitic;
1500 - 1506	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, increasingly silty and grading to very finely arenaceous silt, slightly argillaceous, no shows, no visible porosity, very silty, moderately dolomitic;
1506 - 1514	**SILTSTONE** - as above, very finely arenaceous in part, moderately dolomitic
1514 - 1515	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, increasingly silty and grading to very finely arenaceous siltstone, slightly argillaceous, no shows, no visible porosity, very silty, moderately dolomitic;
Belloy	1515m Sample 1517m Log
1515 - 1537	SHALE - brown, blocky, moderately dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1537 - 1538	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above;
1538 - 1544	**SHALE** - brown, medium dark gray, as above, moderately dolomitic;
1544 - 1545	**SILTSTONE** - medium dark gray, as above, moderately dolomitic;
1545 - 1548	**SHALE** - brown, medium dark gray, as above, moderately dolomitic;
1548 - 1549	**SILTSTONE** - medium gray, as above, moderately dolomitic;
1549 - 1559	**SHALE** - brown, medium dark gray, blocky, rarely silty, moderately dolomitic;
1559 - 1562	**SILTSTONE** - medium gray, as above, moderately dolomitic;
1562 - 1564	**SHALE** - brown, medium dark gray, blocky, rarely silty, moderately dolomitic;
1564 - 1565	**SILTSTONE** - medium gray, as above, moderately dolomitic;
1565 - 1567	**SANDSTONE** - medium gray, very fine grained, subangular to angular, well sorted, no shows, interbedded with siltstone as above, moderately dolomitic;
1567 - 1573	**SHALE** - brown, medium dark gray, blocky, rarely silty, moderately dolomitic;
1573 - 1575	**SANDSTONE** - medium gray, very fine grained, subangular to angular, well sorted, grading to siltstone, tight, very silty, moderately dolomitic;
1575 - 1581	**SHALE** - brown, occasionally medium dark gray, as above, moderately dolomitic;
1581 - 1584	**SHALE** - medium dark gray, as above, moderately dolomitic;
Fantasque	1584m Sample 1571m Log

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1584 - 1587	**SANDSTONE** - medium dark gray, fine grained, subangular to angular, well sorted, very rarely medium grained, no shows, no observable porosity, moderately argillaceous, moderately dolomitic, abundant glauconite;
1587 - 1589	**SILTSTONE** - medium dark gray, well consolidated, slightly siliceous cemented, moderately argillaceous;
1589 - 1590	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, very well consolidated, siliceous cemented, no observable porosity, moderately argillaceous, moderately carbonaceous, trace pyrite;
1590 - 1593	**SILTSTONE** - medium dark gray, well consolidated, slightly siliceous cemented, moderately argillaceous;
1593 - 1598	**SANDSTONE** - very fine grained, subangular to angular, well sorted, very well consolidated, siliceous cemented in part, slightly to moderately dolomitic, rare cherty laminae, grading to dark gray siltstone, moderately argillaceous, very silty;
1598 - 1601	**SILTSTONE** - medium dark gray, well consolidated, slightly siliceous cemented, moderately argillaceous;
1601 - 1602	**SANDSTONE** - very fine grained, subangular to angular, well sorted, very well consolidated, siliceous cemented in part, slightly to moderately dolomitic, rare cherty laminae, grading to dark gray siltstone, moderately argillaceous, very silty;
1602 - 1603	**SILTSTONE** - medium dark gray, well consolidated, slightly siliceous cemented, moderately argillaceous;
1602 - 1603	**CHERT** - dark brown gray, rarely light medium gray, cryptocrystalline, massive with very fine grains of glauconite;
1603 - 1604	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, as above, moderately carbonaceous, moderately argillaceous, moderately dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1604 - 1606	**SILTSTONE** - medium dark gray, medium brown gray, slightly argillaceous, very finely arenaceous, dark brown gray and grading to silty dolomite in part, very cherty, moderately dolomitic;
1606 - 1608	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, as above, moderately carbonaceous, moderately argillaceous, moderately dolomitic;
1608 - 1610	**CHERT** - dark brown gray, rarely light medium gray, cryptocrystalline, massive with very fine grains of glauconite;
1610 - 1611	**SILTSTONE** - medium dark gray, medium brown gray, slightly argillaceous, very finely arenaceous, dark brown gray and grading to silty dolomite in part, very cherty, moderately dolomitic, moderately sandy;
1611 - 1612	**CHERT** - dark brown gray, rarely light medium gray, cryptocrystalline, massive with very fine grains of glauconite;
1612 - 1614	**SILTSTONE** - medium dark gray, medium brown gray, slightly argillaceous, very finely arenaceous, dark brown gray and grading to silty dolomite in part, very cherty, moderately dolomitic;
1614 - 1617	**CHERT** - dark brown gray, rarely light medium gray, cryptocrystalline, massive with very fine grains of glauconite;
1614 - 1617	**CHERT** - dark brown gray, cryptocrystalline, massive with very fine glauconite grains, as above;
1617 - 1618	**SILTSTONE** - medium dark gray, as above, very cherty, moderately dolomitic;
1618 - 1619	**CHERT** - dark brown gray, cryptocrystalline, as above;
1619 - 1627	**CHERT** - gray black, dark brown gray on fresh surface, microcrystalline to very fine grained, no visible porosity, moderately dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1627 - 1634	**CHERT** - gray black, dark brown gray on fresh surface, microcrystalline to very fine grained, trace pyrite, occasional very fine grained very glauconitic sandstone laminae, moderately dolomitic;
1634 - 1641	**CHERT** - microcrystalline to very fine grained, slightly argillaceous, as above, very rare dull yellow fluorescence with slow bluish cut, occasional very fine grained sandstone laminae, moderately dolomitic;
1641 - 1647	**CHERT** - microcrystalline to very fine crystalline, slightly argillaceous, occasional very fine grained sandstone laminae, moderately dolomitic;
1647 - 1654	**CHERT** - gray black, dark brown gray on fresh surface, microcrystalline to very fine grained, as above, moderately dolomitic;
1654 - 1656	**CHERT** - dark gray to dark brown gray, microcrystalline to very fine grained, as above, slightly dolomitic;
1656 - 1658	**CHERT** - dark gray to dark brown gray, microcrystalline to very fine grained, no visible fluorescence, slow bluish cut, slightly argillaceous, trace pyrobitumin, trace pyrite, rare sparry calcite and white dolomite fracture filling, rare microvuggy porosity;
1658 - 1662	**CHERT** - dark gray to dark brown gray, microcrystalline to very fine grained, as above, slightly dolomitic;
1662 - 1666	**CHERT** - dark brown gray,, cryptocrystalline to very fine grained, slightly dolomitic, spiculer in part,, slightly dolomitic, rare white flinty fracture filling, trace microvuggy and coarse grained fracture and solution porosity, dull yellow fluorescence with slow bluish cut;
1666 - 1668	**SANDSTONE** - dark brown gray, very fine grained, subangular to angular, well sorted, slightly dolomitic, very cherty in part, occasional pyrite, trace microvuggy porosity, moderately silty, occasional glauconite;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1668 - 1674	**CHERT** - dark brown gray, light blue gray, cryptocrystalline to very fine grained, slightly dolomitic, rare flinty filled fractures, very rare intercrystalline and microvuggy porosity, occasional very fine grained cherty sandstone with intergranular porosity;
1674 - 1676	**CHERT** - dark brown gray, cryptocrystalline to very fine grained, as above, with dark brown gray very fine grained moderately silty moderately to very dolomitic sandstone, trace fracture and solution porosity, trace intergranular porosity;
1676 - 1678	**CHERT** - blue gray to dark brown gray, cryptocrystalline to very fine grained, as above, slightly dolomitic, with occasional fine to coarse grained sandstone fracture filling with intergranular porosity;
1678 - 1679	**CHERT** - light blue gray, cryptocrystalline to very fine grained, as above, no visible porosity;
1679 - 1689	**CHERT** - medium brown gray to medium dark gray, medium blue gray, cryptocrystalline to very fine grained, trace vuggy porosity, trace intergranular porosity, very rare dull yellow fluorescence with slow bluish cut, as above, with dark brown gray carbonaceous moderately to very dolomitic moderately silty sandstone with trace intergranular porosity, trace solution porosity;
1689 - 1692	**CHERT** - cryptocrystalline to very fine grained, non to moderately dolomitic where very fine grained, trace of fracture infilling, trace microvuggy porosity;
1692 - 1694	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, very slightly to moderately dolomitic, spiculer in part, grading to cherty siltstone, trace solution porosity, very silty;
1694 - 1696	**CHERT** - dark brown gray, occasionally blue gray, cryptocrystalline to very fine grained, as above, trace microvuggy porosity;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1696 - 1699	**SANDSTONE** - dark brown gray, very fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with slow bluish cut, as above, occasionally carbonaceous and pyrobituminous, trace intergranular porosity, very cherty, moderately dolomitic, very silty;
1699 - 1702	**CHERT** - dark brown gray, occasionally blue gray, cryptocrystalline to very fine grained, as above, trace microvuggy porosity;
1702 - 1707	**SANDSTONE** - dark brown gray, very fine grained, subangular to angular, well sorted, trace intergranular porosity, rare dull yellow fluorescence with slow bluish cut, as above, occasionally carbonaceous and pyrobituminous, trace intergranular porosity, very cherty, moderately dolomitic, very silty;
1707 - 1709	**CHERT** - dark brown gray, trace fracture filling with very fine grained sandstone, as above;
1709 - 1718	**SILTSTONE** - very dark gray, no shows, tight, very argillaceous, moderately carbonaceous, very dolomitic;
1718 - 1721	**CHERT** - dark brown gray, trace fracture filling with very fine grained sandstone, as above;
Mattson	1721m Sample 1721m Log
1721 - 1726	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, slow bluish cut, scattered pyrobitumin, rare intergranular porosity, moderately dolomitic, moderately silty;
1726 - 1730	**SANDSTONE** - medium brown gray, light medium gray, very fine grained, subangular to angular, well sorted, slow bluish cut, as above, moderately to very calcareous, no visible porosity, moderately silty;
1730 - 1736	**SANDSTONE** - medium brown gray, light medium gray, very fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence with yellowish white cut, as above, moderately pyrobituminous, no observable porosity to rare intergranular porosity, very calcareous, very silty;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1736 - 1737	**SHALE** - grayish green, blocky, non calcareous;
1737 - 1739	**SANDSTONE** - medium light gray, very fine grained, angular to subrounded, well sorted, scattered dull yellow fluorescence with yellowish white cut, slightly to very calcareous, scattered pyrobitumin, siliceous cemented, scattered intergranular porosity;
1739 - 1741	**SANDSTONE** - medium light gray, very fine grained, angular to subrounded, well sorted, scattered pyrobitumin, siliceous cemented, as above, very calcareous, very silty;
1741 - 1742	**SHALE** - grayish green, blocky, non calcareous;
1742 - 1743	**SANDSTONE** - medium light gray, very fine grained, angular to subrounded, well sorted, scattered pyrobitumin, siliceous cemented, as above, very calcareous, very silty;
1743 - 1752	**SANDSTONE** - medium light gray, very fine grained to fine grained, angular to subrounded, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, very calcareous to dolomitic, very rare glauconite, rarely medium grained, scattered good intergranular and intercrystalline porosity with euhedral quartz crystals and overgrowths;
1752 - 1753	**SILTSTONE** - medium gray, siliceous cemented, occasionally grayish green and shaley, moderately dolomitic;
1753 - 1755	**SANDSTONE** - medium light gray, very fine grained to fine grained, angular to subrounded, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, very calcareous to dolomitic, very rare glauconite, rarely medium grained, scattered intergranular porosity;
1755 - 1756	**SILTSTONE** - medium gray, siliceous cemented, occasionally grayish green and shaley, moderately dolomitic;
1756 - 1758	**SANDSTONE** - medium light gray, very fine grained to fine grained, angular to subrounded, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, very calcareous to dolomitic, very rare glauconite, rarely medium grained, scattered intergranular porosity;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1758 - 1759	**SILTSTONE** - medium gray, siliceous cemented, occasionally grayish green and shaley, moderately dolomitic;
1759 - 1761	**SANDSTONE** - medium light gray, pale greenish gray in part, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, slightly to moderately dolomitic, siliceous cemented, very rare pinpoint porosity, trace pyrite, rarely pyrobituminous with dull yellow fluorescence and yellowish white cut, as above;
1761 - 1762	**SHALE** - dark gray, blocky, very silty in part, moderately dolomitic;
1762 - 1763	**SILTSTONE** - medium gray, dark gray, as above, moderately dolomitic;
1763 - 1764	**SANDSTONE** - pale greenish gray, medium light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, rare glauconite, siliceous cemented, scattered silt size pyrite, rare intergranular porosity, very silty, moderately dolomitic;
1764 - 1765	**SHALE** - dark gray, blocky, very silty in part, moderately dolomitic;
1765 - 1768	**SANDSTONE** - pale greenish gray, medium light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, rare glauconite, siliceous cemented, scattered silt siz pyrite, rare intergranular porosity, very silty, moderately dolomitic;
1768 - 1769	**SILTSTONE** - medium gray, dark gray, as above, moderately dolomitic;
1769 - 1770	**SHALE** - dark gray, blocky, very silty in part, moderately dolomitic;
1770 - 1771	**SILTSTONE** - medium gray, dark gray, as above, moderately dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1771 - 1773	**SANDSTONE** - pale greenish gray, medium light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, rare glauconite, siliceous cemented, scattered silt size pyrite, rare intergranular porosity, very silty, moderately dolomitic;
1773 - 1774	**SILTSTONE** - medium gray, dark gray, as above, moderately dolomitic;
1774 - 1777	**SHALE** - very dark gray, slightly dolomitic, slightly to moderately silty, moderately carbonaceous;
1777 - 1778	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, siliceous cemented, moderately silty, slightly dolomitic, moderately carbonaceous, very rare very fine to fine grained streaks with intergranular porosity;
1778 - 1780	**SHALE** - very dark gray, slightly dolomitic, slightly to moderately silty, moderately carbonaceous;
1780 - 1783	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, very calcareous to dolomitic cement, siliceous cement, as above, no shows, no observable porosity;
1783 - 1786	**SILTSTONE** - dark gray, moderately carbonaceous, moderately dolomitic, moderately argillaceous;
1786 - 1787	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, very calcareous to dolomitic cement, siliceous cement, as above, no shows, no observable porosity;
1787 - 1789	**SILTSTONE** - dark gray, moderately carbonaceous, moderately dolomitic, moderately argillaceous;
1789 - 1794	**SANDSTONE** - light medium gray, salt and pepper in part, very fine grained, subangular to angular, well sorted, porosity, dull yellow fluorescence with slow bluish cut, siliceous cemented, slightly to moderately dolomitic, trace intergranular porosity in sample;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1794 - 1796	**SHALE** - medium gray to medium green gray, very silty in part, moderately dolomitic;
1796 - 1797	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, slightly to moderately dolomitic, siliceous cemented, very silty;
1797 - 1798	**SHALE** - medium gray to medium green gray, very silty in part, moderately dolomitic;
1798 - 1799	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, slightly to moderately dolomitic, siliceous cemented, very silty;
1799 - 1801	**SILTSTONE** - light medium gray, very siliceous cemented and cherty, very finely arenaceous and grading to silty sand, very cherty, moderately dolomitic;
1801 - 1802	**SANDSTONE** - medium light gray, light brown gray in part, pale greenish gray in part, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, very silty and grading to siltstone, no observable porosity, very cherty;
1802 - 1803	**SHALE** - as above, very dark gray and carbonaceous in part;
1803 - 1806	**SANDSTONE** - medium light gray, light brown gray in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, trace pyrite, siliceous cemented, cherty in part, trace shaley laminae, trace dolomitic kaolin laminae, trace intergranular porosity, moderately dolomitic;
1806 - 1807	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1807 - 1812	**SANDSTONE** - medium light gray, light brown gray in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, trace pyrite, siliceous cemented, cherty in part, trace shaley laminae, trace dolomitic kaolin laminae, trace intergranular porosity, moderately dolomitic;
1812 - 1813	**SHALE** - dark gray, non calcareous, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1813 - 1815	**SANDSTONE** - light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very rare coarse to very coarse chert grains in sample, trace intergranular porosity where very fine to fine grained, moderately dolomitic;
1815 - 1816	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, as above, trace intergranular porosity, moderately dolomitic;
1816 - 1818	**SANDSTONE** - light medium gray, light brown gray, very fine grained, subangular to angular, well sorted, as above, moderately dolomitic;
1818 - 1820	**SANDSTONE** - light medium gray, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, moderately to very dolomitic, trace chert fragments in sample, trace intergranular porosity, moderately dolomitic;
1820 - 1822	**SHALE** - very dark gray, very silty and grading to very argillaceous siltstone in part, moderately carbonaceous;
1822 - 1825	**SANDSTONE** - light medium gray, light brown gray, very fine grained, subangular to angular, well sorted, as above, moderately dolomitic;
1825 - 1827	**SILTSTONE** - dark gray, moderately argillaceous, moderately dolomitic;
1827 - 1828	**SANDSTONE** - medium light gray salt and pepper, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, rarely fine grained, trace intergranular porosity, moderately dolomitic;
1828 - 1830	**SILTSTONE** - dark gray, very shaley in part, very finely arenaceous in part, moderately dolomitic, moderately argillaceous;
1830 - 1831	**SHALE** - dark gray, as above;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1831 - 1833	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, trace dolomitic kaolin laminae, trace intergranular porosity, moderately dolomitic;
1833 - 1834	**SILTSTONE** - dark gray, very shaley in part, very finely arenaceous in part, moderately dolomitic, moderately argillaceous;
1834 - 1835	**SHALE** - dark gray, as above;
1835 - 1840	**SANDSTONE** - medium light gray, light brown gray, very fine grained, occasionally very fine to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, trace intergranular porosity, moderately dolomitic;
1840 - 1841	**SHALE** - dark gray, as above;
1841 - 1842	**SILTSTONE** - medium to dark gray, brown gray and grading to shale, non calcareous, moderately carbonaceous;
1842 - 1846	**SANDSTONE** - medium light gray salt and pepper, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, slightly to moderately dolomitic, scattered intergranular porosity where fine grained, moderately dolomitic;
1846 - 1848	**SHALE** - dark gray, medium brown gray, non calcareous, moderately silty;
1848 - 1850	**SANDSTONE** - medium light gray salt and pepper, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, slightly to moderately dolomitic, scattered intergranular porosity where fine grained, moderately dolomitic;
1850 - 1853	**SHALE** - dark gray, silty in part, non calcareous, moderately carbonaceous, moderately silty;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1853 - 1856	**SILTSTONE** - dark gray, very argillaceous, moderately dolomitic;
1856 - 1860	**SANDSTONE** - medium light gray, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish white cut, siliceous cemented, scattered intergranular porosity where very fine to fine grained, medium brown gray with pyrobitumin in part, moderately dolomitic;
1860 - 1861	**SILTSTONE** - dark gray, slightly to moderately pyrobituminous in part, very argillaceous, moderately dolomitic;
1861 - 1867	**SILTSTONE** - light medium gray, medium brown gray, no apparent fluorescence, bluish cut, non to very slightly dolomitic, bentonitic, very finely arenaceous in part, trace microvuggy and moldic porosity, very argillaceous;
1867 - 1869	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, no observable to very rare trace intergranular porosity in sample, moderately dolomitic;
1869 - 1870	**SILTSTONE** - as above, trace microvuggy and moldic porosity;
1870 - 1874	**SANDSTONE** - light brown gray to light yellow brown, occasional medium brown gray, very fine grained and some fine grained, subangular to angular, well sorted, occasional dull yellow fluorescence with slow bluish cut, siliceous cemented, trace intergranular porosity in part, slightly dolomitic;
1874 - 1875	**SILTSTONE** - as above, scattered microvuggy and moldic porosity;
1875 - 1880	**SANDSTONE** - light gray salt and pepper, light yellow brown to light brown gray, very fine grained to fine grained, subangular to angular, well sorted, occasional dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic, trace to scattered intergranular porosity;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1880 - 1882	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic cemented, trace white slightly dolomitic kaolin laminae, scattered intergranular porosity;
1892 - 1883	**SILTSTONE** - as above, trace microvuggy and moldic porosity;
1883 - 1888	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic cemented, trace white slightly dolomitic kaolin laminae, scattered intergranular porosity;
1888 - 1889	**SILTSTONE** - as above, trace microvuggy and moldic porosity;
1889 - 1892	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic cemented, trace white slightly dolomitic kaolin laminae, scattered intergranular porosity;
1892 - 1893	**SILTSTONE** - light medium gray, as above, dull yellow fluorescence with bluish cut, non calcareous, very argillaceous;
1893 - 1894	**SHALE** - dark gray, as above;
1894 - 1895	**SANDSTONE** - medium light gray salt and pepper, light yellow brown, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, non to slightly dolomitic, trace kaolin laminae, occasional subrounded fine grains, trace intergranular porosity;
1895 - 1897	**SILTSTONE** - light medium gray, dull yellow fluorescence with bluish cut, non calcareous, very argillaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1897 - 1901	**SANDSTONE** - light yellow brown, rarely medium yellow brown and pyrobituminous, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic, occasional carbonaceous laminae, trace intergranular porosity;
1901 - 1903	**SILTSTONE** - as above, with moldic and microvuggy porosity, very argillaceous;
1903 - 1904	**SANDSTONE** - light yellow brown, rarely medium yellow brown and pyrobituminous, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic, occasional carbonaceous laminae, trace intergranular porosity;
1904 - 1906	**SILTSTONE** - light medium gray, as above, non calcareous, very argillaceous;
1906 - 1909	**CHERT** - light yellow brown, cryptocrystalline, occasionally dolomitic, no observable porosity;
1909 - 1913	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subangular to angular, well sorted, siliceous cemented, subrounded grains in part, scattered good intergranular porosity, moderately dolomitic;
1913 - 1916	**CHERT** - light yellow brown, occasionally bluish gray, cryptocrystalline, occasionally dolomitic, no observable porosity;
1916 - 1917	**DOLOMITE** - light to medium yellow brown, microcrystalline to finely crystalline, no shows, very finely arenaceous, no visible porosity, moderately cherty;
1917 - 1918	**SANDSTONE** - light gray salt and pepper, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, very siliceous cemented and cherty, no visible porosity;
1918 - 1919	**CHERT** - light yellow brown, cryptocrystalline, occasionally dolomitic, no observable porosity;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1919 - 1922	**DOLOMITE** - light to medium yellow brown, very finely crystalline to finely crystalline, very fine grained wackestone in part, as above;
1922 - 1925	**SANDSTONE** - light gray salt and pepper, light yellow brown salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, very siliceous cemented and cherty, very dolomitic in part and grading to very fine wackestone;
1925 - 1926	**CHERT** - cryptocrystalline to very fine grained, as above, trace dark gray and cryptocrystalline to microcrystalline, tight;
1926 - 1929	**SANDSTONE** - light yellow brown, salt and pepper in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly to moderately dolomitic, moderately cherty in part, no visible porosity, moderately silty;
1929 - 1930	**CHERT** - cryptocrystalline to very fine grained, as above, trace dark gray and cryptocrystalline to microcrystalline, tight;
1930 - 1932	**SANDSTONE** - light yellow brown, salt and pepper in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly to moderately dolomitic, moderately cherty in part, no visible porosity, moderately silty;
1932 - 1933	**CHERT** - cryptocrystalline to very fine grained, as above, trace dark gray and cryptocrystalline to microcrystalline, tight;
1933 - 1935	**SANDSTONE** - light yellow brown, medium light gray salt and pepper, medium dark brown, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence in part with slow bluish cut, siliceous cemented, medium yellow brown pyrobituminous and very dolomitic in part, grading to very fine grained wackestone in part, no observable porosity;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1935 - 1936	**CHERT** - light to medium yellow brown, cryptocrystalline to very fine grained, grading in part to very fine grained, silty. cherty, sandstone;
1936 - 1938	**SANDSTONE** - light gray, light yellow brown, very fine grained and some fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with bluish cut, very dolomitic and grading to very fine grained wackestone in part, cherty streaks, siliceous cemented, trace kaolin laminae, moderately cherty;
1938 - 1939	**CHERT** - light to medium yellow brown, cryptocrystalline to very fine grained, grading in part to very fine grained, silty, cherty, sandstone;
1939 - 1941	**SANDSTONE** - light gray, light yellow brown, very fine grained and some fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with bluish cut, very dolomitic and grading to very fine grained wackestone in part, cherty streaks, siliceous cemented, trace kaolin laminae, moderately cherty;
1941 - 1945	**SANDSTONE** - as above, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, medium yellow brown and argillaceous and slightly dolomitic in part, very rare streaks of medium to coarse grained, tight, moderately dolomitic, moderately cherty;
1945 - 1955	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, very siliceous cemented, slightly dolomitic, occasional moderately argillaceous siltstone interbeds, very rare streaks of fine to medium grained, very cherty;
1955 - 1964	**SANDSTONE** - light yellow brown, dark yellow brown in part, very fine grained to fine grained, subangular to subrounded, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1964 - 1966	**SANDSTONE** - medium yellow brown, very fine grained, subangular to angular, well sorted, moderately dolomitic, no visible porosity, moderately silty, moderately cherty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1966 - 1974	**SANDSTONE** - light to medium yellow brown, very fine grained to fine grained, subangular to subrounded, well sorted, siliceous cemented, very slightly dolomitic, very fine grained and moderately dolomitic in part, silty in part, cherty in part, scattered intergranular porosity;
1974 - 1976	**SANDSTONE** - light yellow brown, very fine grained, subangular to angular, well sorted, very siliceous and cherty in part with laminae of light to dark gray chert, occasional pyrite, tight, moderately dolomitic;
1976 - 1979	**SANDSTONE** - dark yellow brown, very fine grained to fine grained, subangular to angular, well sorted, siliceous cemented, slightly argillaceous, scattered pyrobitumin, rare trace intergranular porosity;
1979 - 1980	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1980 - 1981	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1981 - 1982	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1982 - 1984	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1984 - 1985	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1985 - 1987	**SANDSTONE** - medium dark gray, very fine grained, subangular to angular, well sorted, occasional dark gray carbonaceous shale laminae, moderately silty, very cherty, moderately argillaceous;
1987 - 1988	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
2032 - 2034	**SILTSTONE** - dark gray, dark brown gray in part, moderately to very cherty, chert streaks, slightly to moderately dolomitic, occasionally very dolomitic, very finely arenaceous in part;
2034 - 2037	**SANDSTONE** - light to medium yellow brown, light gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly pyritic, cherty in part and occasional chert laminae, silty, moderately dolomitic;
2037 - 2038	**SILTSTONE** - dark gray, dark brown gray in part, moderately to very cherty, chert streaks, slightly to moderately dolomitic, occasionally very dolomitic, very finely arenaceous in part, moderately cherty;
2038 - 2039	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, very dolomitic in part and grading to very fine grained wackestone in part, moderately cherty;
2039 - 2044	**SANDSTONE** - light gray, light yellow brown, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly to moderately dolomitic, medium yellow brown and very dolomitic in part, trace pyrite, very cherty in part and scattered cherty laminae,
2044 - 2045	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subrounded to angular, well sorted, siliceous cemented, slightly dolomitic, trace intergranular porosity in sample;
2045 - 2046	**SANDSTONE** - light gray, light yellow brown, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly to moderately dolomitic, medium yellow brown and very dolomitic in part, trace pyrite, very cherty in part and scattered cherty laminae;
TOTAL DEPTH	2046m Driller 2045m Logger

DRILL STEM TESTS

DETAILED CORE DESCRIPTION

Core No. 1 Interval: 1333.0m - 1351.2m Cut: 18.2m
Depth (m) Formation: Garbutt Recovered: 18.2m

Depth (m)	
1333.0 - 1333.6	**SHALE** - dark gray, very silty and grading to very argillaceous siltstone, non calcareous, very carbonaceous;
1333.6 - 1333.67	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, trace mica, non calcareous, thinly laminated, moderately argillaceous, very silty, trace glauconite;
1333.67 - 1333.72	**SHALE** - as above, very silty, very carbonaceous;
1333.72 - 1334.47	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, trace mica, non to moderately calcareous, rare pinpoint porosity to no visible porosity, very silty, scattered glauconite;
1334.47 - 1335.27	**SHALE** - dark gray, very silty in part, occasional (2) sandstone interbeds (4cm), no shows, tight, very silty, very carbonaceous;
1335.27 - 1335.87	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, slightly argillaceous in part, tight, very silty;
1335.87 - 1336.77	**SHALE** - as above, interbedded with very fine grained very carbonaceous slightly calcareous sandstone laminae, very silty, very carbonaceous;
1336.77 - 1337.07	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, slightly argillaceous in part, tight, very silty;
1337.07 - 1339.4	**SHALE** - dark gray, as above, grading to argillaceous siltstone, very silty, very carbonaceous;
1339.4 - 1339.5	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, slightly argillaceous in part, tight, very silty
1339.5 - 1351.2	SHALE - very dark gray, poker chip partings, very rare sandstone laminae, occasionally silty, rare slickensides, rare fossils (Ammonite?, fish skeletal fragments), very carbonaceous;

SUMMARY OF DRILLING BREAKS AND GAS INCREASES

Interval	Formation	P.R. Change(min/m)	Gas Change(units)	Lithology
166-69	Lepine	2.5 to 2.2-2.3	4 to 5	CGL/tr ig por
183-19	Lepine	2.5 to 1.7-3.4	3-4 to 4-8	CGL/ig por
243-59	Lepine	8.5 to 3.6-4.5	5 to 3-4	SS/scat ig por
259-67	Lepine	6.0 to 3.8-4.6	3 to 4	CGL/g ig por
349-53	Lepine	7.9 to 3.8-7.5	5 to 4	SS/tr ig por
1102-03	Garbutt	8.4 to 11	22 to 21	SS/os/tt
1204-06	Garbutt	9.8 to 10.5	22 to 36	SS/os/rr pp por
1218-20	Garbutt	10.5 to 7.2-8.5	18 to 16	SS/os/ tt
1223-32	Garbutt	11.1 to 7.1-8.4	26 to 16 to 23	SS/os/rr pp por
1330-33	Garbutt	5.1 to 7-10.4	13 to 10-12	SS/os/rr pp por
1410-22*	Chinkeh	8.1 to 10-13.1	8 to 4-5	SS/tr ig por
1649-52	Fantasque	28.6 to 15.6-17.7	17 to 26	CHT/n ob por
1656-58	Fantasque	20.6 to 9.9-10.4	10 to 11	CHT/mv por
1662-78*	Fantasque	23 to 7.6-13.6	13 to 24	CHT/mv/frc/ig
1669-71*	Fantasque	12.3 to 9.8-13.6	20 to 29-34	CHT/tr mv/xl
1679-89*	Fantasque	24.5 to 20.4-33.2	17 to 15-28	CHT/tr mv por
1692-94*	Fantasque	34.4 to 20.9-24.8	27 to 74(0.2m)	SS/tr sol por
1696-99	Fantasque	52.7 to 20.2-29.7	25 to 10	SS/tr ig por
1702-07	Fantasque	57.6 to 27.4-38	11 to 10-14	SS/tr ig por
1721-24	Mattson	31.5 to 18.8-13.0	29 to 57-14	SS/rr ig por
1730-36	Mattson	58.5 to 25.6-20.0	10 to 8	SS/os/n ob por
1737-39	Mattson	29.4 to 20.2	7 to 31-14	SS/os/ig por
1743-47	Mattson	24.3 to 5.2-13.6	10 to 7	SS/good ig por
1750-52	Mattson	22.0 to 14.6-15.1	6 to 6-7	SS/scat ig por
1753-54	Mattson	27.9 to 19	8 to 4	SS/scat ig por
1756-58	Mattson	28.2 to 20.3-24	7 to 4	SS/scat ig por
1789-94*	Mattson	49.8 to 8.7-27.2	7 to 6-7	SS/tr ig por
1803-06*	Mattson	28.7 to 19-22.8	4 to 8	SS/tr ig por
1807-12	Mattson	28.8 to 14.4-22.2	4 to 6-8	SS/tr ig por
1815-16	Mattson	21.5 to 16.3	3 to 4	SS/tr ig por
1818-20*	Mattson	22.8 to 12.4-13.5	4 to 4-7	SS/tr ig por
1827-28*	Mattson	21.9 to 17.5	4 to 6	SS/tr ig por
1831-33*	Mattson	36.1 to 23-24.5	4 to 7-10	SS/tr ig por
1835-40*	Mattson	36.5 to 10.2-21	10 to 13	SS/tr ig por
1842-46*	Mattson	17.3 to 4-11.5	8 to 10	SS/scat ig por
1848-50	Mattson	46.3 to 13.4-19.8	8 to 4-6	SS/scat ig por
1853-56	Mattson	34.4 to 26.4-30.8	14 to 8-13	SLT/mv/mld por
1856-58	Mattson	26.8 to 19-20.6	13 to 10-11	SS/os/scat por
1867-69*	Mattson	55.4 to 14.5-19.3	15 to 20	SS/tr ig por
1876-92*	Mattson	33.5 to 7.7-30.7	15 to 13-18	SS/scat ig por

SUMMARY OF DRILLING BREAKS AND GAS INCREASES

Interval	Formation	P.R. Change(min/m)	Gas Change(units)	Lithology
1894-95	Mattson	39.2 to 22.2	11 to 10	SS/scat ig por
1897-01	Mattson	35.3 to 25.7-21.2	10 to 7-10	SS/tr ig por
1903-04	Mattson	35.0 to 20.6	10 to 8	SS/tr ig por
1906-08*	Mattson	30.8 to 24.1-26.4	10 to 8	SS/tr ig por
1909-13*	**Mattson**	**40.2 to 1.7-6.5**	**13 to 10-13**	**SS/g ig por**
1955-62	**Mattson**	**49 to 4-5.6**	**8 to 17-21**	**SS/g ig por**
1968-71	Mattson	29.7 to 9.6-17.9	14 to 15 units	SS/scat ig por
1972-73	Mattson	26.9 to 9.6	13 to 14	SS/os/scat por
1980-84	Mattson	31.1 to 22.3-29.6	18 to 14-15	SS/scat ig por
1988-89	Mattson	34.3 to 23.2	17 to 20	SS/scat ig por
1999-00	**Mattson**	**45.8 to 24.7**	**18 to 42**	**SS/tr ig por**
2002-08	Mattson	28.2 to 6.2-13.8	22 to 20-29	SS/scat ig por
2017-19	**Mattson**	**38.8 to 14.2-21.1**	**14 to 43-24**	**SS/scat ig por**
2030-31	**Mattson**	**41.6 to 11.7**	**18 to 172**	**SS/tr ig por**
2044-45	**Mattson**	**38.0 to 25**	**43 to 113**	**SS/tr ig por**

NOTE: Significant intervals are in bold type.
Gas readings are maximum reading in the interval.
os indicates significant fluorescence and cut.
Directional drilled hole from 1654m to 1917m.
*indicates interval was tested.

DST #1 (1906m to 1917m). Partial misrun. NGTS. Recovered 660m of salty water.
DST #2 (1865m to 1892m). Misrun. Recovered 15m of invert.
DST #3 (1819m to 1848m). GTS. 214m3/day. Recovered 100m of gassy invert and 100m of gassy salt water cut invert.
DST #4 (1781m to 1804.4m). NGTS. Recovered 10m of gassy invert.
DST #5 (1405m to 1429m). NGTS. Recovered 45m of invert.
DST #6 (1668m to 1698m). GTS. TSTM. Recovered 290m of contaminated invert and 200m of salt water.
DST #7 (2028m to 2046m). NGTS. Recovered 62m of gasified invert.
DST #8 (1955m to 1965m). Misrun.
DST #9 (1955m to 1965m). NGTS. Recovered 100m of gasified invert, 50m of water cut invert, and 115m of salt water.

DRILLSTEM TEST

DRILLSTEM TEST No. 1

Date: March 9-10, 1999

Formation: Mattson

Interval: 1906m to 1917m

Test type: Bottom Hole Conventional

Packers: 177mm

Hole size: 222mm

Drill pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools/Delta P Test Corp.

PRESSURES:		Times:	
IH:	18259 kPa		
1st IPF:	9440 kPa	1st PF:	10 min
1st FPF:	14369 kPa		
1st SI:	17356 kPa	1st SI:	3 min
2nd IPF:	17982 kPa	2nd PF:	15 min
2nd FPF:	17429 kPa		
2nd SI:	17516 kPa	2nd SI:	60 min
3rd IF:	17516 kPa	VO:	60 min
FF:	17541 kPa		
FSI:	17574 kPa	FSI:	120 min
FH:	18211 kPa	BHT: 64.3 C	

NOTE: Above pressures are from real time charts. Unable to get pressures in field from downhole recorder due to tool plugging.

Results:

Flow comments: 1st PF: No blow for 7 minutes as air line to test head was not open. When air line opened had SAB immediately. NGTS. Delta P real time tool indicated test tool probably plugged.
2nd PF: WAB increasing to SAB in 10 minutes. NGTS.
VO: WAB throughout. NGTS. Delta P real time tool indicated test tool was still shut in. This suggested tool was plugged.

Recovery: 660m of fluid (Top 108m was invert and salty water. Bottom 552m was salty water.). Salinity 22000 ppm.

DRILLSTEM TEST

DRILLSTEM TEST No. 1

Test comments: Delta P real time chart indicated tool plugged 5 minutes into 1st preflow. Lack of draw down made it difficult to get reliable build up pressures. Baker Tools advised Paramount office there was enough information on charts to do Horner plot.
1 invert sample (sample 1-MT) collected at flow line prior to running test. 4 recovery samples. Sample 1-A: taken at top of recovery column at 660m was invert and salty water. Sample 1-B: taken at 552m was salty water. Sample 1-C: taken at 200m was salty water. Sample 1-D: taken at bottom of recovery at 0m was invert that was used to reverse circulate out recovery. Bottom hole sampler #246. All samples sent to AGAT Labs, Fort St. John, via Baker Oil Tools Tester, Bob Allen.

DRILLSTEM TEST

DRILLSTEM TEST No. 2

Date: March 12, 1999

Formation: Mattson

Interval: 1865m to 1892m

Test type: Inflate Straddle

Packers: 178mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools/Delta P Test Corp.

PRESSURES:		Times:	
IH:	18228 kPa		
1st IPF:	241 kPa	1st PF:	11 min
1st FPF:	418 kPa		
FH:	18212 kPa		
ISI:(2 min)	4220 kPa*	BHT:	60.2 C

*Delta P real time chart

Results:

Flow comments: 1st PF: WAB throughout. Lost packer seat 2 minutes into ISI.

Recovery: 15m of invert.

Test Comments: Packer seat held for PF. Mud started to leak around packers at ISI. Pumped packers up for an additional 20 minutes. Could not get seat. Moved packers up 1m and pumped up packers for 30 min. Unable to get seat. Discontinue test.
1 invert sample (sample 2-MT) collected at flow line prior to running test. Sample 2-A: taken at top of 15m of recovery was invert. One bottom hole sample was dumped on location. 3 sample bottles collected from the bottom hole sampler (samples labelled DST #2 BHS) were invert.

DRILLSTEM TEST

DRILLSTEM TEST No. 3

Date: March 12-13, 1999

Formation: Mattson

Interval: 1819m to 1848m

Test type: Inflate Straddle

Packers: 178mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 166.0mm ID: 71.0mm

Testing Company: Baker Oil Tools/Delta P Test Corp.

PRESSURES:		Times:	
IH:	17798 kPa		
IPF:	534 kPa	PF:	10 min
FPF:	855 kPa		
ISI:	15044 kPa	ISI:	60 min
IF:	740 kPa	VO:	120 min
FF:	2128 kPa		
FSI:	16525 kPa	FSI:	240 min
FH:	17797 kPa	BHT:	61.9 C

Results:

Flow comments: PF: WAB increasing to SAB in 30 sec. GTS in 6.5 minutes. Lazy 3m flare through a 6.35mm (0.25") choke.
VO: WAB increasing to SAB in 10 sec. GTS immediately. Lazy 1.5m flare. Changed choke to 3.175mm (0.125"). Lazy 1.5m flare. 60 kPa pressure at the floor manifold indicated a flow of 214m3/day (7557ft3/day).

Recovery: 200m of fluid (Top 100m was gassy invert. Bottom 100 metres was gassy water cut invert. Sample caught at very top of tool was salty water (34000ppm Cl)

DRILLSTEM TEST

DRILLSTEM TEST No. 3

Test comments: Delta P real time tool signal was lost just prior to PF. The signal was regained at the start of the FSI.
1 invert sample (sample 3-MT) was collected from mud tank prior to running test. Gas bomb 11293 was collected during PF. Gas bomb 20129 was collected at the VO. 5 samples of the fluid recovery were taken. Sample 3-A: taken at the top of the recovery column at 200m was gassy invert. Sample 3-B: taken at at the 175m level of the fluid recovery was gassy invert. Sample 3-C: taken at 100m was gassy water cut invert. Sample 3--D: taken at 25m from the tool was gassy water cut invert. Sample 3-E: taken just at top of tool was water with a salinity of 34000ppm Cl. 2 sample bottles (labelled 3-BHS) containing contents of 1 emptied bottom hole sampler. 1 bottom hole sampler.

DRILLSTEM TEST

DRILLSTEM TEST No. 4

Date: March 13-14, 1999

Formation: Mattson

Interval: 1781m to 1804.5m

Test type: Inflate Straddle

Packers: 178mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	17494 kPa		
IPF:	253 kPa	PF:	10 min
FPF:	338 kPa		
ISI:	763 kPa	ISI:	60 min
IF:	239 kPa	VO:	180 min
FF:	297 kPa		
FSI:	2391 kPa	FSI:	360 min
FH:	17449 kPa	BHT:	61.7 C

Results:

Flow comments: PF: WAB increasing to FAB in 10 minutes. NGTS.
VO: Strong initial surge. Vented. WAB increasing to SAB after 150 min. NGTS.

Recovery: 10M of gassy invert.

Test comments: Test indicates a low permeability gas reservoir.
Collected 1 invert drilling fluid sample (sample 4-MT) prior to running test. Collected 2 recovery samples (sample 4-A & sample 4-B) from top of tool.

DRILLSTEM TEST

DRILLSTEM TEST No. 5

Date: March 14, 1999

Formation: Chinkeh

Interval: 1405m to 1429m

Test type: Inflate Straddle

Packers: 178mm

Hole size: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	13895 kPa		
IPF:	166 kPa	PF:	10 min
FPF:	258 kPa		
ISI:	10900 kPa	ISI:	60 min
IF:	283 kPa	VO:	120 min
FF:	652 kPa		
FSI:	10903 kPa	FSI:	240 min
FH:	13813 kPa	BHT:	49.6 C

Results:

Flow comments: PF: VWAB steady throughout. NGTS.
VO: VWAB steady throughout.

Recovery: 45m of invert.

Test comments: Collected 1 mud tank sample (sample 5-MT) prior to running test. Collected 3 samples of fluid recovery. Sample 5-A was collected from top of 45m recovery column. Sample 5-B was from middle of fluid recovery column. Sample 5-C was collected from bottom of recovery column. 2 bottom hole samplers.

DRILLSTEM TEST

DRILLSTEM TEST No. 6

Date: March 15-16, 1999

Formation: Fantasque

Interval: 1668m to 1698m

Test type: Inflate Straddle

Packers: 178mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	16389 kPa		
IPF:	610 kPa	PF:	10 min
FPF:	1075 kPa		
ISI:	15104 kPa	ISI:	60 min
IF:	1239 kPa	VO:	120 min
FF:	5134 kPa		
FSI:	15071 kPa	FSI:	240 min
FH:	16380 kPa	BHT:	60.6 C

Results:

Flow comments: PF: WAB increasing to SAB in 2.5 min. Increasing throughout. NGTS.
VO: WAB increasing to SAB in 2 min. GTS in 30 min. Lazy 1m flare. TSTM.

Recovery: 490m of fluid recovery (90 m of gassy invert, 200m of gassy invert slightly contaminated with salt water, and 200m of gassy salt water.).

DRILLSTEM TEST

DRILLSTEM TEST No. 6

Test comments: Collected 1 sample (sample 6-MT) of drilling fluid from mud tank prior to running test. Collected 1 gas bomb (ser.no. 18796) at 60 min. into VO. Collected 6 samples of reverse circulated recovery. Sample 6-A: collected from the top of the 490m of fluid recovery was gassy invert. Sample 6-B: collected from the 400m level of the fluid recovery was gassy contaminated invert. Sample 6-C: collected at 300m was gassy contaminated invert. Sample 6-D: collected at 200m level of recovery was gas cut salt water. Sample 6-E: collected at 100m was gas cut salt water. Sample 6-F was collected at the top of the tool and consisted of gassy salt water (50000ppm Cl). 2 bottom hole samplers.
All samples shipped to AGAT Labs, Fort St. John, via Baker Oil Tools tester Ken Willis.

DRILLSTEM TEST

DRILLSTEM TEST No. 7

Date: March 20-21, 1999

Formation: Mattson

Interval: 2028m to 2046m

Test type: Bottom Hole Inflate

Packers: 177mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	20228 kPa		
IPF:	452 kPa	PF:	10 min
FPF:	611 kPa		
ISI:	2732 kPa	ISI:	60 min
IF:	376 kPa	VO:	120 min
FF:	735 kPa		
FSI:	4693 kPa	FSI:	240 min
FH:	19863 kPa	BHT:	68.0 C

Results:

Flow comments: PF: WAB increasing to SAB in 30 sec. then decreasing to FAB to end of PF. NGTS.
Note: Tool opened 5 times and skidded 2 metres before 10 min. PF. No mud was lost.
VO: WAB increasing to SAB in 30 sec. for 4 min. then decreasing to FAB to end of VO. NGTS.

Recovery: 62.0m of gasified invert.

Test comments: Collected 1 sample (sample 7-MT) of drilling fluid from mud tank prior to running test. Collected 4 samples of fluid recovery. Sample 7-01: collected at 45m level of recovery column; Sample 7-02: collected at 27m level of recovery column; Sample 7-03: collected at 9m level of recovery column; Sample 7-04: collected at top of tool.

DRILLSTEM TEST

DRILLSTEM TEST No. 8

Date: March 21, 1999

Formation: Mattson

Interval: 1955m to 1965m

Test type: Inflate Straddle

Packers: 177mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	19218 kPa		
IPF:		PF:	
FPF:			
ISI:		ISI:	
IF:		VO:	
FF:			
FSI:		FSI:	
FH:	19199 kPa	BHT:	63.1 C.

Results:

Flow comments:

Recovery:

Test comments: DST #8 was declared a misrun as unable to inflate packer. Inspection when out of hole showed blown bottom packer.

DRILLSTEM TEST

DRILLSTEM TEST No. 9

Date: March 22, 1999

Formation: Mattson

Interval: 1955m to 1965m

Test type: Inflate Straddle

Packers: 177mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	19218 kPa		
IPF:	581 kPa	PF:	8 min
FPF:	2811 kPa		
ISI:		ISI:	
IF:		VO:	
FF:			
FSI:		FSI:	
FH:	19207 kPa	BHT:	

Results:

Flow comments: PF: WAB. NGTS. Lost packer seat after 8 min.

Recovery: 265m of fluid recovery (100m of gasified invert; 50m of water cut gassy invert; 115m of salty water (18000ppm Cl)

Test comments: Test declared a misrun as packers blew 8 min. into PF. Collected 1 sample (sample 9-MT) of invert drilling fluid from mud tank prior to running test. Collected 6 samples of reverse circulated recovery. Sample 9-01: collected at the top of the recovery column at 265m was gasified invert; Sample 9-02: collected at 200m level was gasified invert; Sample 9-03: collected at 165m was water cut invert; Sample 9-04: collected at 155m was salty water; Sample 9-05: collected at 75m was salty water; Sample 9-06: collected at top of tool was salty water. 2 bottom hole samplers. All samples sent to AGAT Labs, Fort St John, via Baker Oil Tools tester Marc Sampietro.

WELL EVALUATIONS:

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
871	2000/03/13	10:00:00		4140	0																			
872		11:00:00		4150	0																			
873	2000/03/13	12:00:00		4160	0																			
874		13:00:00		4175	0																			
875		14:00:00		4190	0																			
876		15:00:00		4210	0																			
877		16:00:00		4230	0																			
878		17:00:00		4240	0																			
879	2000/03/13	18:00:00		4255	0																			
880		19:00:00		4265	0																			
881		20:00:00		4280	0																			
882		21:00:00		4290	0																			
883		22:00:00		4300	0																			
884		23:00:00		4310	0																			
885	2000/03/14	00:00:00		4325	0																			
886		01:00:00		4340	0																			
887		02:00:00		4355	0																			
888		03:00:00		4370	0																			
889		04:00:00		4385	0																			
890		05:00:00		4400	0																			
891	2000/03/14	06:00:00		4415	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
842	2000/03/12	05:00:00		3840	0																			
843	2000/03/12	06:00:00		3855	0																			
844		07:00:00		3870	0																			
845		08:00:00		3890	0																			
846		09:00:00		3710	0																			
847		10:00:00		3730	0																			
848		11:00:00		3750	0																			
849	2000/03/12	12:00:00		3770	0																			
850		13:00:00		3790	0																			
851		14:00:00		3800	0																			
852		15:00:00		3825	0																			
853		16:00:00		3850	0																			
854		17:00:00		3885	0																			
855	2000/03/12	18:00:00		3880	0																			
856		19:00:00		3900	0																			
857		20:00:00		3915	0																			
858		21:00:00		3930	0																			
859		22:00:00		3940	0																			
860		23:00:00		3955	0																			
861	2000/03/13	00:00:00		3970	0																			
862		01:00:00		3985	0																			
863		02:00:00		4000	0																			
864		03:00:00		4020	0																			
865		04:00:00		4035	0																			
866		05:00:00		4050	0																			
867	2000/03/13	06:00:00		4065	0																			
868		07:00:00		4090	0																			
869		08:00:00		4105	0																			
870		09:00:00		4125	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
842	2000/03/12	05:00:00		3840	0																			
843	2000/03/12	06:00:00		3855	0																			
844		07:00:00		3870	0																			
845		08:00:00		3890	0																			
846		09:00:00		3710	0																			
847		10:00:00		3730	0																			
848		11:00:00		3750	0																			
849	2000/03/12	12:00:00		3770	0																			
850		13:00:00		3790	0																			
851		14:00:00		3800	0																			
852		15:00:00		3825	0																			
853		16:00:00		3850	0																			
854		17:00:00		3865	0																			
855	2000/03/12	18:00:00		3880	0																			
856		19:00:00		3900	0																			
857		20:00:00		3915	0																			
858		21:00:00		3930	0																			
859		22:00:00		3940	0																			
860		23:00:00		3955	0																			
861	2000/03/13	00:00:00		3970	0																			
862		01:00:00		3985	0																			
863		02:00:00		4000	0																			
864		03:00:00		4020	0																			
865		04:00:00		4035	0																			
866		05:00:00		4050	0																			
867	2000/03/13	06:00:00		4070	0																			
868																								

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
813	2000/03/10	00:00:00		3105	0																			
814		01:00:00		3140	0																			
815		02:00:00		3170	0																			
816		03:00:00		3205	0																			
817		04:00:00		3215	0																			
818		05:00:00		3225	0																			
819	2000/03/11	06:00:00		3240	0																			
820		07:00:00		3270	0																			
821		08:00:00		3300	0																			
822		09:00:00		3320	0																			
823		10:00:00		3335	0																			
824		11:00:00		3350	0																			
825	2000/03/11	12:00:00		3370	0																			
826		13:00:00		3390	0																			
827		14:00:00		3410	0																			
828		15:00:00		3420	0																			
829		16:00:00		3440	0																			
830		17:00:00		3450	0																			
831	2000/03/11	18:00:00		3455	0																			
832		19:00:00		3475	0																			
833		20:00:00		3490	0																			
834		21:00:00		3510	0																			
835		22:00:00		3525	0																			
836		23:00:00		3540	0																			
837	2000/03/12	00:00:00		3555	0																			
838		01:00:00		3575	0																			
839		02:00:00		3590	0																			
840		03:00:00		3605	0																			
841		04:00:00		3620	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
784	2000/03/09	19:00:00		2060	0																			
785		20:00:00		2130	0																			
786		21:00:00		2200	0																			
787		22:00:00		2255	0																			
788		23:00:00		2310	0																			
789	2000/03/10	00:00:00		2360	0																			
790		01:00:00		2390	0																			
791		02:00:00		2430	0																			
792		03:00:00		2470	0																			
793		04:00:00		2510	0																			
794		05:00:00		2550	0																			
795	2000/03/10	06:00:00		2590	0																			
796		07:00:00		2620	0																			
797		08:00:00		2650	0																			
798		09:00:00		2690	0																			
799		10:00:00		2720	0																			
800		11:00:00		2750	0																			
801	2000/03/10	12:00:00		2780	0																			
802		13:00:00		2810	0																			
803		14:00:00		2840	0																			
804		15:00:00		2870	0																			
805		16:00:00		2900	0																			
806		17:00:00		2930	0																			
807	2000/03/10	18:00:00		2955	0																			
808		19:00:00		2980	0																			
809		20:00:00		3005	0																			
810		21:00:00		3025	0																			
811		22:00:00		3045	0																			
812		23:00:00		3070	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
755	2000/03/08	19:05:00		110	0																			
756		19:10:00		125	0																			
757		19:15:00		135	0																			
758		19:30:00		150	0																			
759		19:45:00		180	0																			
760		20:00:00		215	0																			
761		20:30:00		260	0																			
762		21:00:00		320	0																			
763		22:00:00		410	0																			
764		23:00:00		500	0																			
765	2000/03/09	00:00:00		580	0																			
766		01:00:00		690	0																			
767		02:00:00		770	0																			
768		03:00:00		860	0																			
769		04:00:00		950	0																			
770		05:00:00		1040	0																			
771	2000/03/09	06:00:00		1130	0																			
772		07:00:00		1230	0																			
773		08:00:00		1300	0																			
774		09:00:00		1400	0																			
775		10:00:00		1500	0																			
776		11:00:00		1600	0																			
777	2000/03/09	12:00:00		1675	0																			
778		13:00:00		1750	0																			
779		14:00:00		1820	0																			
780		15:00:00		1890	0																			
781		16:00:00		1950	0																			
782		17:00:00		1980	0																			
783	2000/03/09	18:00:00		2020	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
726	2000/03/08	08:00:00		1810	0																			
727		09:00:00		1830	0																			
728		10:00:00		1835	0																			
729		11:00:00		1840	0																			
730	2000/03/08	12:00:00		1850																				
731		13:00:00		1860	0																			
732		13:00:00	Trican coil tubing unit arrived on location. Shut in master valve, rig off deadweight line, and rig in coil tubing.																					
733		14:15:00	Hold pre job safety meeting.																					
734		14:30:00	Pressure test surface lines to 35 Mpa. Pressure test coil and wellhead to 21 Mpa.																					
735		14:40:00	Coil start running in hole.																					
736		15:00:00	Bring N2 on line at 15 SCM.																					
737		15:30:00	Fluid to surface.																					
738		15:45:00		100										1.85	100	1.85	0.19	35.16	7	20000	0.000	0.000	0.000	35.16
739		16:00:00		80										0.50	100	0.50	48.00	35.66	7	20000	0.000	0.000	0.000	35.66
740		16:00:00	Trace of sediment in samples.																					
741		16:15:00		60										0.65	100	0.65	62.40	36.31			0.000	0.000	0.000	36.31
742		16:30:00		60										0.40	100	0.40	38.40	36.71	7	22000	0.000	0.000	0.000	36.71
743		16:30:00	Coil on bottom. Increase N2 to 25 SCM.																					
744		16:45:00		120										0.60	100	0.60	57.60	37.31	7	28000	0.000	0.000	0.000	37.31
745		17:00:00		70										0.25	100	0.25	24.00	37.56	7	28000	0.000	0.000	0.000	37.56
746		17:05:00	Coil start running out of hole.																					
747		17:15:00		60										0.05	100	0.05	4.80	37.61	7	26000	0.000	0.000	0.000	37.61
748		17:30:00		60										0.00	0	0.00	0.00	37.61			0.000	0.000	0.000	37.61
749		18:00:00	Tubing tstm.																					
750		18:15:00	Coil on surface. Shut in master valve and rig out coil.																					
751		18:15:00	Fluid recovered during coil tubing blow out: 4.35 m^3 of H^2O with traces of sediment.																					

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	F'ld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
697	2000/03/07	03:00:00		1430	0																			
698		04:00:00		1440	0																			
699		05:00:00		1460	0																			
700	2000/03/07	06:00:00		1470	0																			
701		07:00:00		1500	0																			
702		08:00:00		1510	0																			
703		09:00:00		1520	0																			
704		10:00:00		1530	0																			
705		11:00:00		1540	0																			
706	2000/03/07	12:00:00		1550	0																			
707		13:00:00		1560	0																			
708		14:00:00		1580	0																			
709		15:00:00		1590	0																			
710		16:00:00		1600	0																			
711		17:00:00		1610	0																			
712	2000/03/07	18:00:00		1630	0																			
713		19:00:00		1640	0																			
714		20:00:00		1650	0																			
715		21:00:00		1665	0																			
716		22:00:00		1675	0																			
717		23:00:00		1685	0																			
718	2000/03/08	00:00:00		1700	0																			
719		01:00:00		1710	0																			
720		02:00:00		1725	0																			
721		03:00:00		1735	0																			
722		04:00:00		1750	0																			
723		05:00:00		1760	0																			
724	2000/03/08	06:00:00		1770	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
668	2000/03/05	00:00:00		1160	0																			
669		01:00:00		1180	0																			
670		02:00:00		1195	0																			
671		03:00:00		1210	0																			
672		04:00:00		1225	0																			
673		05:00:00		1240	0																			
674	2000/03/06	06:00:00		1250	0																			
675		07:00:00		1260	0																			
676		08:00:00		1270	0																			
677		09:00:00		1280	0																			
678		10:00:00		1290	0																			
679		11:00:00		1305	0																			
680	2000/03/06	12:00:00		1320	0																			
681		13:00:00		1330	0																			
682		14:00:00		1340	0																			
683		15:00:00		1350	0																			
684		15:00:00		Shut in master valve, bleed off wellhead, wireline rig in to get sample and do static gradient.																				
685		17:40:00		Wireline run in hole to get fluid sample.																				
686	2000/03/06	18:20:00		Wireline on surface, fluid sample is broken frac gel with trace oil. Fluid level at 600m																				
687		18:40:00		Wireline run in hole to conduct a pressure gradient test. BHP 12,900kPa																				
688		20:00:00		Wireline on surface.																				
689		20:00:00		1360	0																			
690		21:00:00		1375	0																			
691		22:00:00		1390	0																			
692		23:00:00		1380	0																			
693	2000/03/07	00:00:00		1400	0																			
694		01:00:00		1410	0																			
695		02:00:00		1420	0																			
696		03:00:00		1430	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
639	2000/03/04	19:00:00		720	0																			
640		20:00:00		730	0																			
641		21:00:00		745	0																			
642		22:00:00		760	0																			
643		23:00:00		775	0																			
644	2000/03/05	00:00:00		790	0																			
645		01:00:00		800	0																			
646		02:00:00		815	0																			
647		03:00:00		830	0																			
648		04:00:00		850	0																			
649		05:00:00		870	0																			
650		06:00:00		880	0																			
651		07:00:00		900	0																			
652		08:00:00		910	0																			
653		09:00:00		920	0																			
654		10:00:00		940	0																			
655		11:00:00		960	0																			
656	2000/03/05	12:00:00		975	0																			
657		13:00:00		990	0																			
658		14:00:00		1005	0																			
659		15:00:00		1020	0																			
660		16:00:00		1035	0																			
661		17:00:00		1050	0																			
662	2000/03/05	18:00:00		1070	0																			
663		19:00:00		1080	0																			
664		20:00:00		1100	0																			
665		21:00:00		1120	0																			
666		22:00:00		1130	0																			
667		23:00:00		1140	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	Tbg C Pres	Csg Pres	Tbg Tem	Choke Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
610	2000/03/03	14:00:00	160	0																		
611		15:00:00	180	0																		
612		16:00:00	200	0																		
613		17:00:00	215	0																		
614	2000/03/03	18:00:00	235	0																		
615		19:00:00	255	0																		
616		20:00:00	265	0																		
617		21:00:00	275	0																		
618		22:00:00	295	0																		
619		23:00:00	310	0																		
620	2000/03/04	00:00:00	330	0																		
621		01:00:00	345	0																		
622		02:00:00	360	0																		
623		03:00:00	380	0																		
624		04:00:00	400	0																		
625		05:00:00	420	0																		
626	2000/03/04	06:00:00	435	0																		
627		07:00:00	460	0																		
628		08:00:00	490	0																		
629		09:00:00	520	0																		
630		10:00:00	540	0																		
631		11:00:00	565	0																		
632	2000/03/04	12:00:00	580	0																		
633		13:00:00	600	0																		
634		14:00:00	625	0																		
635		15:00:00	645	0																		
636		16:00:00	660	0																		
637		17:00:00	680	0																		
638	2000/03/04	18:00:00	695	0																		

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
581	2000/03/02	20:00:00		3300	0																		
582		21:00:00		3320	0																		
583		22:00:00		3340	0																		
584		23:00:00		3360	0																		
585	2000/03/03	00:00:00		3380	0																		
586		01:00:00		3400	0																		
587		02:00:00		3410	0																		
588		03:00:00		3430	0																		
589		04:00:00		3450	0																		
590		05:00:00		3460	0																		
591		06:00:00		3470	0																		
592		07:00:00		3490	0																		
593		08:00:00		3510	0																		
594		09:00:00		3530	0																		
595		10:00:00		3550	0																		
596		10:15:00	Pressure up to choke and open to flow on a 16/64 (6.35mm) adjustable choke.																				
597		10:20:00		1575	0																		
598		10:25:00		725	0																		
599		10:30:00	Tubing on slight blow, pressure TSTM, gas rate TSTM, no fluid returned to surface.																				
600		10:45:00	Tubing pressure and gas rate TSTM.																				
601		11:00:00	Tubing pressure and gas rate TSTM.																				
602		11:15:00	Tubing pressure and gas rate TSTM, shut in at wing valve and moniter pressures.																				
603		11:20:00	Tubing pressure TSTM, casing=0.																				
604		11:25:00		10	0																		
605		11:30:00		20	0																		
606		11:45:00		40	0																		
607	2000/03/03	12:00:00		80	0																		
608		12:30:00		140	0																		
609		13:00:00		150	0																		

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
552	2000/03/01	15:00:00		2670	0																			
553		16:00:00		2700	0																			
554		17:00:00		2720	0																			
555		18:00:00		2750	0																			
556		19:00:00		2770	0																			
557		20:00:00		2790	0																			
558		21:00:00		2810	0																			
559		22:00:00		2830	0																			
560		23:00:00		2850	0																			
561	2000/03/02	00:00:00		2870	0																			
562		01:00:00		2900	0																			
563		02:00:00		2920	0																			
564		03:00:00		2950	0																			
565		04:00:00		2980	0																			
566		05:00:00		3000	0																			
567		06:00:00		3020	0																			
568		07:00:00		3030	0																			
569		08:00:00		3050	0																			
570		09:00:00		3070	0																			
571		10:00:00		3090	0																			
572		11:00:00		3110	0																			
573	2000/03/02	12:00:00		3140	0																			
574		13:00:00		3160	0																			
575		14:00:00		3180	0																			
576		15:00:00		3200	0																			
577		16:00:00		3220	0																			
578		17:00:00		3240	0																			
579		18:00:00		3260	0																			
580		19:00:00		3280	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
523	2000/02/29	10:00:00		1860	0																			
524		11:00:00		1890	0																			
525	2000/02/29	12:00:00		1930	0																			
526		13:00:00		1960	0																			
527		14:00:00		2000	0																			
528		15:00:00		2030	0																			
529		16:00:00		2060	0																			
530		17:00:00		2090	0																			
531		18:00:00		2130	0																			
532		19:00:00		2160	0																			
533		20:00:00		2180	0																			
534		21:00:00		2200	0																			
535		22:00:00		2220	0																			
536		23:00:00		2260	0																			
537	2000/03/01	00:00:00		2290	0																			
538		01:00:00		2320	0																			
539		02:00:00		2340	0																			
540		03:00:00		2380	0																			
541		04:00:00		2390	0																			
542		05:00:00		2420	0																			
543		06:00:00		2450	0																			
544		07:00:00		2480	0																			
545		08:00:00		2500	0																			
546		09:00:00		2520	0																			
547		10:00:00		2550	0																			
548		11:00:00		2570	0																			
549	2000/03/01	12:00:00		2590	0																			
550		13:00:00		2620	0																			
551		14:00:00		2650	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
494	2000/02/28	05:00:00		810	0																			
495	2000/02/28	06:00:00		850	0																			
496		07:00:00		890	0																			
497		08:00:00		950	0																			
498		09:00:00		1000	0																			
499		10:00:00		1030	0																			
500		11:00:00		1070	0																			
501	2000/02/28	12:00:00		1110	0																			
502		13:00:00		1150	0																			
503		14:00:00		1190	0																			
504		15:00:00		1220	0																			
505		16:00:00		1270	0																			
506		17:00:00		1300	0																			
507		18:00:00		1320	0																			
508		19:00:00		1350	0																			
509		20:00:00		1390	0																			
510		21:00:00		1430	0																			
511		22:00:00		1460	0																			
512		23:00:00		1490	0																			
513	2000/02/29	00:00:00		1530	0																			
514		01:00:00		1570	0																			
515		02:00:00		1610	0																			
516		03:00:00		1640	0																			
517		04:00:00		1670	0																			
518		05:00:00		1700	0																			
519		06:00:00		1740	0																			
520		07:00:00		1770	0																			
521		08:00:00		1800	0																			
522		09:00:00		1830	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	Tbg C Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
523	2000/02/29	10:00:00	1860	0																			
524	2000/02/29	11:00:00	1890	0																			
525		12:00:00	1930	0																			
526		13:00:00	1960	0																			
527		14:00:00	2000	0																			
528		15:00:00	2030	0																			
529		16:00:00	2060	0																			
530		17:00:00	2090	0																			
531		18:00:00	2130	0																			
532		19:00:00	2160	0																			
533		20:00:00	2180	0																			
534		21:00:00	2200	0																			
535		22:00:00	2220	0																			
536		23:00:00	2260	0																			
537	2000/03/01	00:00:00	2290	0																			
538		01:00:00	2320	0																			
539		02:00:00	2340	0																			
540		03:00:00	2360	0																			
541		04:00:00	2390	0																			
542		05:00:00	2420	0																			
543	2000/03/01	06:00:00	2450	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
465	2000/02/27	16:50:00		Increase N2 rate to 30m3/min.																				
466	2000/02/27	17:00:00		Returns are mostly N2, fluid is unbroken frac gel, no sand or flammable gas.																				
467		17:00:00		10	2200									0.30	100	0.30	28.80	32.11			0.000	0.000	0.000	32.11
468		17:30:00		Returns are mostly N2, fluid is unbroken frac gel, no sand or flammable gas.																				
469		17:30:00		10	2300									1.00	100	1.00	48.00	33.11			0.000	0.000	0.000	33.11
470		17:50:00		Coil at 1000m, shut down N2.																				
471		18:00:00		0	2425									0.10	100	0.10	4.80	33.21			0.000	0.000	0.000	33.21
472		18:17:00		Coil at surface, shut in master valve, coil rig out.																				
473		18:17:00		0	2425									0.10	100	0.10	0.47	33.31			0.000	0.000	0.000	33.31
474		19:00:00		Coil rigged out, bleed off casing pressure.																				
475		19:00:00		25	2475																			
476		19:01:00		Tie on to casing, bleed to 0.																				
477		19:30:00		175	0																			
478	2000/02/27	20:00:00		250	0																			
479		20:30:00		320	0																			
480		21:00:00		395	0																			
481		21:30:00		400	0																			
482		22:00:00		410	0																			
483		22:30:00		430	0																			
484		23:00:00		450	0																			
485		23:30:00		470	0																			
486	2000/02/28	00:00:00		490	0																			
487		00:00:00		Production summary.																				
488		00:00:00		Total fliud recovered from coil: 4.30 m^3. Cum fluid 33.31 m^3.																				
489		00:01:00		Swicth to hourly readings.																				
490		01:00:00		560	0																			
491		02:00:00		610	0																			
492		03:00:00		690	0																			
493		04:00:00		740	0																			

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
436	2000/02/26	21:00:00		17700	1675																			
437		22:00:00		17500	1700																			
438		23:00:00		17350	1750																			
439	2000/02/27	00:00:00		17200	1775																			
440		01:00:00		17000	1780																			
441		02:00:00		16850	1800																			
442		03:00:00		16700	1825																			
443		04:00:00		16600	1850																			
444		05:00:00		16550	1875																			
445		06:00:00		16475	1800																			
446		07:00:00		16260	1900																			
447		08:00:00		16160	1900																			
448		09:00:00		16070	1925																			
449	2000/02/27	10:00:00		15980	1950																			
450		11:00:00		15900	1950																			
451		12:00:00		15790	1975																			
452		13:00:00		15630	1975																			
453		13:00:00	Open to bleed off tubing on a 32/64 (12.7mm) positive bean choke.																					
454		13:05:00		800	1650																			
455		13:10:00	Tubing is dead, shut in, coil tubing to rig in.																					
456	2000/02/27	14:50:00	Coil unit rigged in, pressure test coil and flow line to 21 MPa.																					
457		15:10:00	Pressure test complete, bleed off, open master, coil start in hole.																					
458		15:15:00	Choke open on 128/64 (50.8mm) bypass.																					
459		15:30:00	Bring N2 on line at 7m3/min.																					
460		15:54:00	Increase N2 rate to 15m3/min.																					
461		16:15:00	Fluid to surface, sample is unbroken frac gel. Increase N2 rate to 20m3/min.																					
462		16:30:00		10	2100									2.55	100	2.55	0.43	31.56			0.000	0.000	0.000	31.56
463		16:45:00	Fluid returns are unbroken frac gel, no sand in sample.																					
464		16:45:00		10	2150									0.25	100	0.25	24.00	31.81			0.000	0.000	0.000	31.81

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
407	2000/02/26	02:30:00		20	0																			
408	2000/02/26	03:00:00		25	0																			
409		03:30:00		25	0																			
410		04:00:00		25	0																			
411		04:01:00		Casing has slight blow, TSTM.																				
412		04:30:00		25	0																			
413		05:00:00		25	0																			
414		05:30:00		25	0																			
415	2000/02/26	06:00:00		25	0																			
416		06:30:00		25	0																			
417		07:00:00		25	0																			
418		08:00:00		25	0																			
419		08:00:00		Shut in master valve, frac crew rig in and do frac.																				
420		11:30:00		End of frac, rig out frac equipment, unable to get frac away.																				
421		13:00:00		Frac crew rigged out, moniter pressures.																				
422		13:00:00		22750	800																			
423		13:30:00		22050	850																			
424	2000/02/26	14:00:00		21470	900																			
425		14:30:00		20790	950																			
426		15:00:00		20450	1050																			
427		15:30:00		19900	1150																			
428		16:00:00		19620	1200																			
429		16:30:00		19330	1250																			
430		17:00:00		19020	1325																			
431		17:30:00		18630	1400																			
432		18:00:00		18480	1425																			
433		18:01:00		Swicth to hourly numbers.																				
434		19:00:00		18150	1500																			
435	2000/02/26	20:00:00																						

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

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Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
378	2000/02/24	03:00:00		12	0																			
379		04:00:00		13	0																			
380		05:00:00		14	0																			
381	2000/02/24	06:00:00		21	0																			
382		07:00:00		21	0																			
383		08:00:00		21	0																			
384		08:13:00	Rig to swab.																					
385		08:20:00	Run in swab #1, no tag, pull-1760m.																					
386		08:32:00	End of swab #1, no fluid recovered, tubing on vac.																					
387		09:00:00	Tubing on vac, casing-0.																					
388		09:35:00	Slick line rug up to pull bar and drop guns.																					
389		11:00:00	Slick line finished and rig out.																					
390	2000/02/24	12:00:00	Tubing on vac, casing-0.																					
391	2000/02/25	00:00:00	Tubing on vac, casing on vac.																					
392		07:00:00	Tubing on vac, casing on vac.																					
393		10:00:00	Tubing on vac, casing on vac.																					
394		14:00:00	Tubing on vac, casing slight vac.																					
395		18:00:00	Tubing on vac, casing slight vac.																					
396	2000/02/25	22:00:00	Tubing on vac, casing slight vac.																					
397	2000/02/26	00:00:00	Tubing on vac, casing slight vac.																					
398		00:01:00	Open wing valve 2", from vac to positive.																					
399		00:05:00	Still slight vac on tubing, casing = 0.																					
400		00:10:00	Tubing = 0, casing = 0.																					
401		00:15:00	Tubing = 0, casing = 0.																					
402		00:30:00	Tubing = 0, casing = 0.																					
403		00:45:00	Tubing TSTM, casing = 0.																					
404		01:00:00	Tubing TSTM, casing = 0.																					
405		01:30:00		10	0																			
406		02:00:00		15	0																			

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

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Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
349	2000/02/23	12:50:00	Electric wireline out of hole and rig out. Rig to rig off BOP's and install wellhead.																					
350		15:30:00	Drop bar and perforate well, moniter pressure.																					
351		15:45:00		80	0																			
352		16:00:00		100	0																			
353		16:15:00		110	0																			
354		16:30:00		110	0																			
355		16:30:00	Open to flow, tubing pressure drops to zero very quickly.																					
356		17:00:00	No detectable inflow, no fluid produced, rig to swab.																					
357		17:17:00	Run in swab #1, no tag, pull-1169.																					
358		17:32:00	End of swab #1, no fluid recovered.																					
359		17:34:00	Run in swab #2, tag-1413m, pull-1760m.																					
360		17:53:00	End of swab #2, trace solids in sample, tubing on vac. Rig shut down for night, moniter pressure.																					
361	2000/02/23	18:00:00	Tubing on vac, casing=0.																					
362		18:30:00	Tubing on vac, casing=0.																					
363		19:00:00	Tubing on vac, casing=0.																					
364		19:30:00	Tubing on vac, casing=0.																					
365		20:00:00	Tubing on vac, casing=0.																					
366		20:30:00	Tubing on vac, casing=0.																					
367		21:00:00	Tubing on vac, casing=0.																					
368		21:30:00	Tubing on vac, casing=0.																					
369		22:00:00	Tubing on vac, casing=0.																					
370		22:30:00	Tubing on vac, casing=0.																					
371		23:00:00	Tubing is TSTM, casing=0																					
372		23:30:00	Tubing is TSTM, casing=0																					
373	2000/02/24	00:00:00		7	0																			
374		00:30:00		7	0																			
375		01:00:00		10	0																			
376		01:01:00	Swicth to hourly readings.																					
377		02:00:00		10	0																			

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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

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Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
320	2000/02/21	20:01:00	Swicth to hourly readings.																					
321		21:00:00		200	0																			
322		22:00:00		260	0																			
323		23:00:00		310	0																			
324	2000/02/22	00:00:00		370	0																			
325		00:00:00	Production summary.																					
326		00:00:00	Total swabs #7, Total fluid brought back from swabs: 3.65 m³. Cum fluid recovered: 29.01 m³.																					
327		01:00:00		420	0																			
328		02:00:00		480	0																			
329		03:00:00		550	0																			
330		04:00:00		620	0																			
331		05:00:00		680	0																			
332	2000/02/22	06:00:00		740	0																			
333		07:00:00		780	0																			
334		08:00:00		830	0																			
335		09:00:00		850	0																			
336		10:00:00		900	0																			
337		10:45:00		970	0																			
338		10:45:00	Bleed off tubing pressure and leave open.																					
339		14:00:00	Break flow line off wellhead, rig to remove wellhead and install BOP's.																					
340	2000/02/22	15:00:00	Rig kills well and trips tubing out of hole.																					
341		18:30:00	Rig finished tripping out, electric wireline rig in to run bridge plug.																					
342		20:15:00	Bridge plug set / slick line on there way out of hole.																					
343		20:25:00	Pressure test to 7- MPA.																					
344		20:35:00	Rig up bailer & poor concrete on plug.																					
345		21:10:00	Slick line run in hole.																					
346	2000/02/22	22:00:00	Slick line on surface, lay down tools, secure equipment for the night.																					
347	2000/02/23	08:00:00	Rig trip tubing in hole.																					
348		11:30:00	Rig finished tripping in, rig in electric wireline to log on depth.																					

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FieldNotes
Field Measurements

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Job Number: GP-00-24

	Date	Clock Time	Tbg Pres	Csg Pres	Tbg Tem	Choke Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
		C																				
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
291	2000/02/21	11:00:00	50																			
292		11:10:00	Run in swab #4, tag-1413m, pull-1815m.																			
293		11:34:00	End of swab #4, trace sediment in sample, tubing on vac, moniter pressure.																			
294		11:34:00										0.50	100	0.50	5.78	28.21	7	20000	0.000	0.000	0.000	28.21
295		11:45:00	Tubing on vac.																			
296		12:00:00	Tubing is TSTM.																			
297		12:30:00	50																			
298	2000/02/21	13:00:00	90																			
299		13:25:00	110																			
300		13:25:00	Run in swab #5, tag-1685m, pull-1815m.																			
301		13:44:00	End of swab #5, trace sediment in sample, tubing on vac, moniter pressure.																			
302		13:44:00										0.40	100	0.40	4.43	28.61	7	18000	0.000	0.000	0.000	28.61
303		14:00:00	Tubing on vac.																			
304		14:30:00	Tubing is TSTM.																			
305		15:00:00	50																			
306		15:17:00	70																			
307		15:17:00	Run in swab #6, tag-1493m, pull-1815m.																			
308		15:41:00	End of swab #6, trace sediment in sample, tubing on vac, moniter pressure.																			
309	2000/02/21	16:00:00	Tubing on vac.																			
310		16:30:00	Tubing is TSTM.																			
311		17:00:00	50																			
312		17:30:00	80																			
313		17:42:00	Run in swab #7, tag-1647m, pull-1815m.																			
314		18:01:00	End of swab #7, tubing on vac, moniter pressure.																			
315		18:01:00										0.40	100	0.40	2.24	29.01	7	20000	0.000	0.000	0.000	29.01
316		18:30:00	Tubing and casing pressure are TSTM.																			
317		19:00:00	60	0																		
318		19:30:00	90	0																		
319	2000/02/21	20:00:00	120	7																		

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

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Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
262	2000/02/20	21:00:00		220	60																			
263		22:00:00		270	50																			
264		23:00:00		320	40																			
265	2000/02/21	00:00:00		360	30																			
266		00:00:00		Production summary.																				
267		00:00:00		Cum fluid recovered 25.16 m^3.																				
268		01:00:00		400	20																			
269		02:00:00		450	10																			
270		03:00:00		505	7																			
271		03:00:00		CSG is TSTM.																				
272		04:00:00		570	0																			
273		05:00:00		600	0																			
274		06:00:00		660	0																			
275		06:00:00		CSG is TSTM.																				
276	2000/02/21	07:00:00		710	0																			
277		08:00:00		780	0																			
278		08:00:00		Open up on 2" bypass to bleed off pressure, rig to swab.																				
279		08:07:00		Run in swab #1, tag-999m, pull-1169m.																				
280		08:27:00		End of swab #1. Tubing on vac.																				
281		08:27:00					50.800							0.65	100	0.65	1.08	25.81	7	21000	0.000	0.000	0.000	25.81
282		08:31:00		Run in swab #2, tag-1169m, pull-1815m.																				
283		09:01:00		End of swab #2, Slight blow on tubing dies off quickly.																				
284		09:01:00					50.800							1.85	100	1.85	78.35	27.66	7	21000	0.000	0.000	0.000	27.66
285		09:09:00		Run in swab #3, no tag, pull-1815m.																				
286		09:29:00		End of swab#3, 1.2% sediment in sample, tubing on vac, moniter pressure.																				
287	2000/02/21	09:29:00												0.05	100	0.05	2.57	27.71	7	20000	0.000	0.000	0.000	27.71
288		09:45:00		Tubing on vac.																				
289		10:00:00		Tubing on vac.																				
290		10:30:00		20																				

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
233	2000/02/20	13:33:00	End of swab #3, sample shows 3.0% sediment. Tubing is on vac.																					
234		13:33:00					50.800							0.05	100	0.05	2.48	24.11	7	20000	0.000	0.000	0.000	24.11
235		13:45:00	Tubing on vac.																					
236		14:00:00	Tubing on vac.																					
237		14:15:00	Tubing on vac.																					
238		14:30:00	Tubing has slight blow, TSTM.																					
239	2000/02/20	14:45:00	Tubing has slight blow, TSTM.																					
240		15:00:00		70																				
241		15:20:00		70																				
242		15:20:00	Run in swab #4, tag-1570m, pull-1815m.																					
243		15:41:00	End of swab #4, sample shows trace sediment. Tubing is on vac.																					
244		15:41:00					50.800							0.65	100	0.65	7.31	24.76	7	18000	0.000	0.000	0.000	24.76
245		16:00:00	Tubing has slight blow, TSTM.																					
246		16:15:00		50																				
247		16:30:00		60																				
248		16:45:00		90																				
249		17:00:00		110																				
250	2000/02/20	17:15:00		140																				
251		17:21:00	Run in swab #5, tag-1647m, pull-1815m.																					
252		17:40:00	End of swab #5. Tubing is on vac.																					
253		17:40:00					50.800							0.40	100	0.40	4.84	25.16	7	18000	0.000	0.000	0.000	25.16
254		17:45:00	Tubing on vac, rig out lubricater, rig shuts down for night, moniter build ups.																					
255		18:00:00	Tubing pressure TSTM.																					
256		18:30:00		30	90																			
257		18:45:00		60	70																			
258	2000/02/20	19:00:00		90	70																			
259		19:30:00		120	70																			
260		20:00:00		150	70																			
261		20:00:00	Swicth to hourly readings.																					

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

Job Number: GP-00-24

	Date	Clock Time	C	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Tem	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss		kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
204	2000/02/17	10:45:00	Run in swab #03, tag-1309m, pull-1825m.																					
205		11:05:00	End of swab #03, sample shows 0.4% sediment.																					
206		11:05:00					50.800							0.40	100	0.40	4.11	19.16	7	10000	0.000	0.000	0.000	19.16
207		11:30:00	Run in swab #04, tag-1484m, pull-1825m.																					
208		12:26:00	End of swab #04, sample shows 0.2% sediment.																					
209		12:26:00					50.800							0.55	100	0.55	9.78	19.71	8	10000	0.000	0.000	0.000	19.71
210		13:51:00	Run in swab #05, tag-1484m, pull-1825.																					
211		14:12:00	End of swab #05, sample shows 0.2% sediment.																					
212		14:12:00					50.800							0.30	100	0.30	4.08	20.01	8	14000	0.000	0.000	0.000	20.01
213	2000/02/17	14:18:00	Rig out swab lubricator and prepare to install wellhead.																					
214	2000/02/19	16:45:00	Drop bar to perforate.																					
215		18:25:00	Rig up wireline to retreive bar.																					
216		19:00:00	Wireline on surface with bar and shut down for night. Night shift to stand by.																					
217	2000/02/20	07:30:00	Rig up Baker wireline to run static gradient.																					
218		07:50:00	Wireline running in hole for gradient.																					
219		09:30:00	Wireline on surface, gradient complete.																					
220		10:19:00	Wireline running in hole to catch sample.																					
221		10:32:00	Wireline on surface, no sample recovered.																					
222		10:47:00	Wireline running in hole to catch sample.																					
223		11:14:00	Wireline on surface with sample, sample is mostly water.																					
224		11:29:00	Wireline rig out, rig to swab.																					
225		11:43:00	Bleed off pressure to begin swabing.																					
226		11:50:00	Run in swab #1, tag-554m, pull-1169m.																					
227		12:18:00	End of swab #1, sample shows 0.2% sediment. Tubing is on vac.																					
228	2000/02/20	12:18:00					50.800							1.70	100	1.70	0.58	21.71	7	20000	0.000	0.000	0.000	21.71
229		12:20:00	Run in swab #2, tag-1126m, pull-1815m.																					
230		13:04:00	End of swab #2, sample show trace of sediment. Tubing has slight blow.																					
231		13:04:00					50.800							2.35	100	2.35	73.57	24.06	7	20000	0.000	0.000	0.000	24.06
232		13:15:00	Run in swab #3, tag-1647m, pull-1815m.																					

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	Tbg Pres	Csg Pres	Tbg Tem	Choke Orifice	Static Pres	Diff Pres	Mete Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
175	2000/02/16	17:50:00	End of swab #13, sample shows 3.2% sediment.																			
176		17:50:00				50.800						0.15	100	0.15	4.80	17.01	8	16000	0.000	0.000	0.000	17.01
177	2000/02/16	18:00:00	Rig out swab unit, and monitor pressure for the night.																			
178		18:30:00	0	130																		
179		19:00:00	7	130																		
180		19:00:00	Swicth to hourly readings.																			
181		20:00:00	7	140																		
182		21:00:00	7	150																		
183		22:00:00	10	150																		
184		23:00:00	10	145																		
185	2000/02/17	00:00:00	15	145																		
186		00:00:00	Production summary.																			
187		00:00:00	Total swabs #13. Total fluid brought back from swabs: 5.10 m^3.																			
188		00:00:00	Cum total swabs #19. Cum fluid recovered on job 17.01 m^3.																			
189		01:00:00	14	140																		
190		02:00:00	14	140																		
191		03:00:00	12	140																		
192		04:00:00	12	130																		
193		05:00:00	12	130																		
194	2000/02/17	06:00:00	12	120																		
195		07:00:00	12	115																		
196																						
197																						
198																						
199																						
200																						
201																						
202																						
203																						

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	Tbg Pres	Csg Pres	Tbg Tem	Choke Orifice	Static Pres	Diff Pres	Mete Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
146	2000/02/16	09:16:00	End of swab #03, sample shows trace amount of sediment.																			
147		09:16:00				50.800						0.65	100	0.65	42.55	14.61	8	16000	0.000	0.000	0.000	14.61
148		09:18:00	Run in swab #04, tag-1484m, pull-1825m.																			
149		09:39:00	End of swab #04, sample shows 0.2% sediment, change cups.																			
150	2000/02/16	09:39:00				50.800						0.10	100	0.10	6.26	14.71	8	16000	0.000	0.000	0.000	14.71
151		10:15:00	Run in swab #05, tag-1484m, pull-1825m.																			
152		10:29:00	End of swab #05, sample shows 0.2% sediment.																			
153		10:29:00				50.800						0.65	100	0.65	18.72	15.36	8	16000	0.000	0.000	0.000	15.36
154		10:56:00	Run in swab #06, Tag-1656m, pull-1825m.																			
155		11:10:00	End of swab #06, sample shows 1.4% sediment.																			
156		11:10:00				50.800						0.20	100	0.20	7.02	15.56	7	14000	0.000	0.000	0.000	15.56
157		11:39:00	Run in swab #07, tag-1484m, pull-1825m.																			
158		11:57:00	End of swab #07, no fluid recovered, change swab cups.																			
159		13:00:00	Run in swab #08, tag-1484m, pull-1825m.																			
160		13:16:00	End of swab #08, sample shows 0.2% sediment.																			
161		13:16:00				50.800						0.55	100	0.55	6.29	16.11	8	12000	0.000	0.000	0.000	16.11
162	2000/02/16	13:54:00	Run in swab #09, tag-1656m, pull-1825m.																			
163		14:11:00	End of swab #09, sample shows 2.0% sediment.																			
164		14:11:00				50.800						0.30	100	0.30	7.85	16.41	8	14000	0.000	0.000	0.000	16.41
165		14:52:00	Run in swab #10, tag-1656m, pull-1825m.																			
166		15:06:00	End of swab #10, sample shows 0.6% sediment.																			
167		15:06:00				50.800						0.05	100	0.05	1.31	16.46	8	14000	0.000	0.000	0.000	16.46
168		16:00:00	Run in swab #11, tag-1656m, pull-1825m.																			
169		16:15:00	End of swab #11, sample shows 0.6% sediment.																			
170		16:15:00				50.800						0.30	100	0.30	6.26	16.76	8	16000	0.000	0.000	0.000	16.76
171		16:49:00	Run in swab #12, tag-1656m, pull-1825m.																			
172		17:05:00	End of swab #12, sample shows 1.2% sediment.																			
173		17:05:00				50.800						0.10	100	0.10	2.88	16.86	8	16000	0.000	0.000	0.000	16.86
174		17:10:00	Run in swab #13, tag-1656m, pull-1825m, wait 10min before pulling																			

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

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Job Number: GP-00-24

	Date	Clock Time	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
117	2000/02/15	20:30:00	35	160																			
118		21:00:00	40	165																			
119		21:30:00	40	165																			
120		22:00:00	45	170																			
121		22:30:00	45	170																			
122		23:00:00	50	170																			
123		23:30:00	60	170																			
124	2000/02/16	00:00:00	65	175																			
125		00:00:00 Production summary.																					
126		00:00:00 Rig pulled 6-swabs. Total fluid recovered during swabs: 4.35 m^3.																					
127		00:00:00 Cum fluid recovered in 48hrs of operation: 11.91 m^3.																					
128		00:00:00 Switch to hourly readings.																					
129		00:00:00	80	175																			
130		01:00:00	95	155																			
131		02:00:00	105	155																			
132		03:00:00	115	155																			
133		04:00:00	125	155																			
134		05:00:00	135	150																			
135	2000/02/16	06:00:00	145	150																			
136		07:00:00	155	155																			
137		08:00:00	160	140																			
138		08:00:00 Rig up swab lubricator																					
139		08:13:00 Run in hole to tag fluid, tag-630m, pull-1131m.																					
140		08:30:00 End of swab #01, sample shows 0.8% sediment.																					
141		08:30:00				50.800							0.90	100	0.90	1.52	12.81	8	16000	0.000	0.000	0.000	12.81
142		08:37:00 Run in swab #02, tag-950m, pull-1484m.																					
143		09:54:00 End of swab #02, sample shows 0.2% sediment.																					
144		08:54:00				50.800							1.15	100	1.15	69.00	13.96	8	16000	0.000	0.000	0.000	13.96
145		08:56:00 Run in swab #03, tag-1398m, pull-1825m.																					

Fast

Paramount Resources
a-01
Start Test Date: 2000/02/12

FieldNotes
Field Measurements

Job Number: GP-00-24

	Date	Clock Time	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
88	2000/02/15	13:30:00	410	160																			
89		13:45:00	Wireline rigged in and running in to get sample.																				
90		15:00:00	Wireline on surface with sample, rig out wireline.																				
91		15:30:00	510	160																			
92		16:00:00	Rig up to swab.																				
93		16:20:00	Run in swab #01, tag-630m, pull-1131m.																				
94		16:30:00	End of swab #01.																				
95		16:30:00				50.800							0.00	0	0.00	0.00	7.56			0.000	0.000	0.000	7.56
96		16:30:00	Fluid level unknown.																				
97		16:33:00	Run in swab #02, tag-1040m, pull-1484m.																				
98		16:50:00	End of swab #02, 0.2% sediment.																				
99		16:50:00				50.800							2.85	100	2.85	205.20	10.41	8	18000	0.000	0.000	0.000	10.41
100		16:53:00	Run in swab #03, tag-1309m, pull-1825m.																				
101		17:10:00	End of swab #03, sample shows trace amount of sediment.																				
102		17:10:00				50.800							0.75	100	0.75	54.00	11.16	7	18000	0.000	0.000	0.000	11.16
103		17:13:00	Run in swab #04, tag-1570m, pull-1825m.																				
104		17:30:00	End of swab #04, sample shows trace amount of sediment, put new cups on.																				
105		17:30:00				50.800							0.35	100	0.35	25.20	11.51	7	18000	0.000	0.000	0.000	11.51
106		17:37:00	Run in swab #05, tag-1570m, pull-1825m.																				
107		17:53:00	End of swab #05, sample shows 0.2% sediment.																				
108		17:53:00				50.800							0.35	100	0.35	21.01	11.86	8	18000	0.000	0.000	0.000	11.86
109		17:55:00	Run in swab #06, tag-1699m, pull-1825m.																				
110		18:15:00	End of swab #06, sample shows 1.0% sediment.																				
111		18:15:00				50.800							0.05	100	0.05	3.27	11.91	8	18000	0.000	0.000	0.000	11.91
112	2000/02/15	18:20:00	Shut in master and rig out lubricator.																				
113		18:45:00	Open master moniter well for the night.																				
114		19:00:00	7	150																			
115		19:30:00	28	150																			
116		20:00:00	35	160																			

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

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Job Number: GP-00-24

	Date	Clock Time	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
59	2000/02/15	00:15:00	21	250																			
60		00:30:00	30	250																			
61		00:45:00	60	250																			
62		01:00:00	90	240																			
63		01:30:00	108	180																			
64		02:00:00	115	170																			
65		02:30:00	132	175																			
66		03:00:00	140	170																			
67		03:30:00	155	170																			
68	2000/02/15	04:00:00	175	170																			
69		04:30:00	185	170																			
70		05:00:00	200	175																			
71		05:30:00	210	170																			
72	2000/02/15	06:00:00	215	170																			
73		06:00:00	Total fluid brought back 7.56 m³.																				
74		06:30:00	230	170																			
75		07:00:00	250	170																			
76		07:30:00	260	170																			
77		08:00:00	260	170																			
78		08:30:00	275	160																			
79		09:00:00	300	165																			
80		09:30:00	300	160																			
81	2000/02/15	10:00:00	325	170																			
82		10:30:00	330	160																			
83		11:00:00	350	165																			
84		11:30:00	355	160																			
85		12:00:00	375	160																			
86		12:30:00	380	160																			
87		13:00:00	400	160																			

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Paramount Resources
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FieldNotes
Field Measurements

Job Number: GP-00-24

	Date	Clock Time	Tbg Pres	Csg Pres	Tbg Tem	Choke Orifice	Static Pres	Diff Pres	Mete Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
30	2000/02/14	19:15:00	Pressure test Trican's line to 28 mpa.																			
31		19:21:00	Pressure test Norward's flow line to 21 mpa.																			
32		19:41:00	Open master to begin.																			
33		19:42:00	Open manifold on a 9.525 mm choke,to bleed down pressure.																			
34		19:48:00	Coil tubeing run in hole.																			
35		20:05:00	Increase choke to 19.050 mm.																			
36		20:15:00	Frac oil to surface, unable to measure fluid due to sight glass starts @ 2.50 m^3.																			
37		20:30:00	100	140		19.050	0.00	0	0.0	0	0.000	0.000	0.00	0	0.00	0.00	0.00			0.000	0.000	0.000	0.00
38		20:33:00	Open bypass to 50.800 mm																			
39		20:55:00	Burnable gas to surface.																			
40		21:00:00	50	180		50.800	0.00	0	0.0	0	0.000	0.000	2.50	100	2.50	120.00	2.50	10	18000	0.000	0.000	0.000	2.50
41		21:00:00	Sample shows small trace of sand.																			
42		21:25:00	No burnable gas to surface.																			
43		21:30:00	50	208		50.800	0.00	0	0.0	0	0.000	0.000	2.25	100	2.25	108.00	4.75	9	20000	0.000	0.000	0.000	4.75
44		21:30:00	Sample shows Trace of sand.																			
45	2000/02/14	22:00:00	50	275		50.800	0.00	0	0.0	0	0.000	0.000	1.25	100	1.25	60.00	6.00	8	42000	0.000	0.000	0.000	6.00
46		22:00:00	Sample shows 0.10% of sand.																			
47		22:30:00	50	300		50.800	0.00	0	0.0	0	0.000	0.000	1.50	100	1.50	72.00	7.50	8	22000	0.000	0.000	0.000	7.50
48		22:30:00	Sample shows 0.02% sand.																			
49		23:00:00	50	300		50.800	0.00	0	0.0	0	0.000	0.000	0.06	100	0.06	2.88	7.56	8	22000	0.000	0.000	0.000	7.56
50		23:00:00	Sample not enough to measure.																			
51		23:01:00	Coil tubeing pulling out of hole.																			
52		23:14:00	N2 has stop pumping.																			
53		23:30:00	30	275		50.800	0.00	0	0.0	0	0.000	0.000	0.00	0	0.00	0.00	7.56	0	0	0.000	0.000	0.000	7.56
54		23:47:00	Shut in master, Coil tubeing out of hole.																			
55		23:50:00	Rig out coil tubeing / Rig up flow line moniter pressure for the night.																			
56	2000/02/15	00:00:00	7	275		0.000	0.00	0	0.0	0	0.000	0.000	0.00	0	0.00	0.00	7.56	0	0	0.000	0.000	0.000	7.56
57		00:05:00	7	275																			
58		00:10:00	14	250																			

Fast

Paramount Resources
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Start Test Date: 2000/02/12

FieldNotes
Field Measurements

a-01

Job Number: GP-00-24

	Date	Clock Time	Tbg Pres	Csg Pres	Tbg Tem	Choke	Orifice	Static Pres	Diff Pres	Mete Temp	Gas Rate	Cum. Gas	Fld Gain	BSW	Water Gain	Water Rate	Cum Water	Ph	Salinity	Oil Gain	Oil Rate	Cum. Oil	Total Fluid
	yyyy/mm/dd	hh:mm:ss	kPa(g)	kPa(g)	°C	mm	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	m^3	%	m^3	m^3/d	m^3		ppm	m^3	m^3/d	m^3	m^3
1	2000/02/12	12:00:00	Arrive on f-36, load equipment and haul to a-01, spot and rig up.																				
2	2000/02/13	14:00:00	Nowsco arrive and completes sand frac.																				
3	2000/02/14	07:00:00	Arrive on location and bleed off tubing to see if it will flow.																				
4		07:14:00	11600	65																			
5		07:24:00	0	65																			
6		07:24:00	Shut in tubing and monitor build-ups.																				
7		07:30:00	Pressure to small to monitor.																				
8		06:00:00	200	65																			
9	2000/02/14	08:30:00	400	65																			
10		09:00:00	1000	70																			
11		09:30:00	1800	70																			
12		10:00:00	2300	75																			
13		10:30:00	2800	75																			
14		11:00:00	3200	75																			
15		11:30:00	3400	75																			
16		12:00:00	3400	80																			
17		12:30:00	3600	85																			
18		13:00:00	3700	90																			
19		13:30:00	3700	100																			
20	2000/02/14	14:00:00	3800	110																			
21		14:30:00	3800	110																			
22		15:00:00	3900	120																			
23		15:30:00	3900	120																			
24		16:00:00	4000	125																			
25		16:30:00	4000	130																			
26		17:00:00	4100	135																			
27		17:30:00	4100	140																			
28		17:50:00	Shut in master to rig up Trican, C.T.																				
29	2000/02/14	19:00:00	Safety meeting.																				

Fast

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1935 - 1936	**CHERT** - light to medium yellow brown, cryptocrystalline to very fine grained, grading in part to very fine grained, silty. cherty, sandstone;
1936 - 1938	**SANDSTONE** - light gray, light yellow brown, very fine grained and some fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with bluish cut, very dolomitic and grading to very fine grained wackestone in part, cherty streaks, siliceous cemented, trace kaolin laminae, moderately cherty;
1938 - 1939	**CHERT** - light to medium yellow brown, cryptocrystalline to very fine grained, grading in part to very fine grained, silty, cherty, sandstone;
1939 - 1941	**SANDSTONE** - light gray, light yellow brown, very fine grained and some fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with bluish cut, very dolomitic and grading to very fine grained wackestone in part, cherty streaks, siliceous cemented, trace kaolin laminae, moderately cherty;
1941 - 1945	**SANDSTONE** - as above, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, medium yellow brown and argillaceous and slightly dolomitic in part, very rare streaks of medium to coarse grained, tight, moderately dolomitic, moderately cherty;
1945 - 1955	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, very siliceous cemented, slightly dolomitic, occasional moderately argillaceous siltstone interbeds, very rare streaks of fine to medium grained, very cherty;
1955 - 1964	**SANDSTONE** - light yellow brown, dark yellow brown in part, very fine grained to fine grained, subangular to subrounded, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1964 - 1966	**SANDSTONE** - medium yellow brown, very fine grained, subangular to angular, well sorted, moderately dolomitic, no visible porosity, moderately silty, moderately cherty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1966 - 1974	**SANDSTONE** - light to medium yellow brown, very fine grained to fine grained, subangular to subrounded, well sorted, siliceous cemented, very slightly dolomitic, very fine grained and moderately dolomitic in part, silty in part, cherty in part, scattered intergranular porosity;
1974 - 1976	**SANDSTONE** - light yellow brown, very fine grained, subangular to angular, well sorted, very siliceous and cherty in part with laminae of light to dark gray chert, occasional pyrite, tight, moderately dolomitic;
1976 - 1979	**SANDSTONE** - dark yellow brown, very fine grained to fine grained, subangular to angular, well sorted, siliceous cemented, slightly argillaceous, scattered pyrobitumin, rare trace intergranular porosity;
1979 - 1980	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1980 - 1981	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1981 - 1982	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1982 - 1984	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1984 - 1985	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1985 - 1987	**SANDSTONE** - medium dark gray, very fine grained, subangular to angular, well sorted, occasional dark gray carbonaceous shale laminae, moderately silty, very cherty, moderately argillaceous;
1987 - 1988	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;

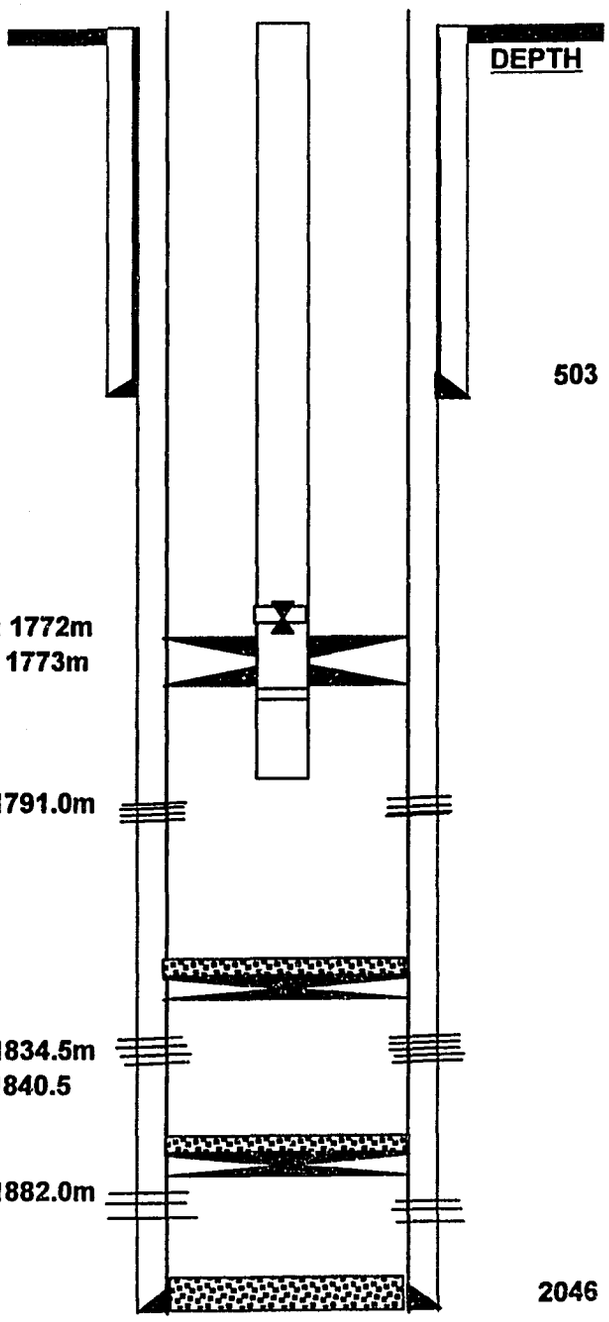
LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
2032 - 2034	**SILTSTONE** - dark gray, dark brown gray in part, moderately to very cherty, chert streaks, slightly to moderately dolomitic, occasionally very dolomitic, very finely arenaceous in part;
2034 - 2037	**SANDSTONE** - light to medium yellow brown, light gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly pyritic, cherty in part and occasional chert laminae, silty, moderately dolomitic;
2037 - 2038	**SILTSTONE** - dark gray, dark brown gray in part, moderately to very cherty, chert streaks, slightly to moderately dolomitic, occasionally very dolomitic, very finely arenaceous in part, moderately cherty;
2038 - 2039	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, very dolomitic in part and grading to very fine grained wackestone in part, moderately cherty;
2039 - 2044	**SANDSTONE** - light gray, light yellow brown, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly to moderately dolomitic, medium yellow brown and very dolomitic in part, trace pyrite, very cherty in part and scattered cherty laminae,
2044 - 2045	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subrounded to angular, well sorted, siliceous cemented, slightly dolomitic, trace intergranular porosity in sample;
2045 - 2046	**SANDSTONE** - light gray, light yellow brown, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly to moderately dolomitic, medium yellow brown and very dolomitic in part, trace pyrite, very cherty in part and scattered cherty laminae;
TOTAL DEPTH	2046m Driller 2045m Logger

E. WELL COMPLETION:

PARAMOUNT ET AL LIARD A-01

(As Completed and Suspended: March 22, 2000)



DEPTH	HOLE SIZES	CASING
		349.7 mm, K-55 kg/m K-55
		Cement: 56 tonnes 0:1:0 "G"
503	445.5mm	
		Tubing: 73mm 9.6kg/m J-55 EUE
		177.8 mm, 34.26 kg/m L-80
		Cement: 17 tonnes 1:1:2 "G" plus 15 tonnes 0:1:o "G"
2046	222	

PARAMOUNT RES LTD.

WELLBORE SCHEMATIC 1

Well: Para et al Fort Liard A-01 Date: 2/10/00

GL	KB	CF	THF
517.40	522.65	517.15	517.75

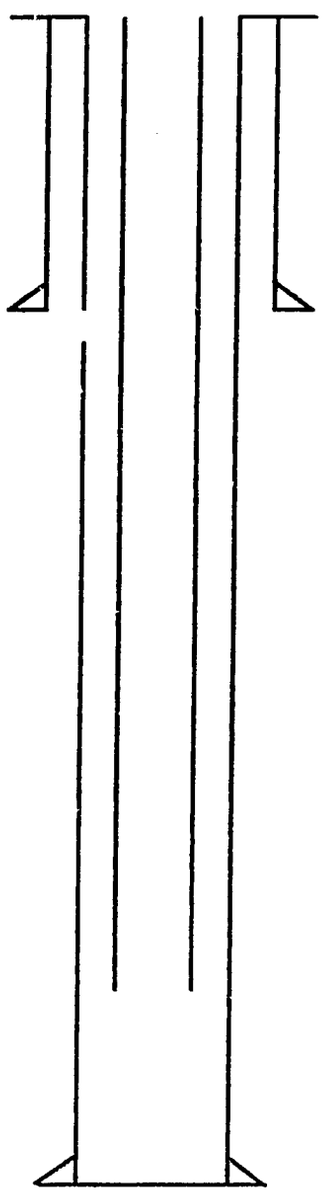
PBTD	TD
1985.00	2046.00

Surface Casing

Size: 244.5 Weight: 48.1
Depth 503.00

Production Casing

Size: 177.8 Weight: 34.26
Depth: 2046.00 PBTD: 1985.00



Wellhead

Make: Vetco Gray 346mm X 179mm X21MPa

Spool:	Size:	346X298	Rating	21MPa	S/F F
Masters:	Size:	79	Rating	21MPa	S/F F
Wings:	Size	52	Rating	21MPa	S/F F

Tubing

Size: 73 Weight: 10 9.67 Depth: 1862.63

Bottom Hole Assembly (Bottom up)	Length	Top depth
127mm Bull Plug	0.30	1882.00
127mm X 60deg.X17spmX36gram Gun	7.00	1875.00
73mm - Firing Head	0.90	1874.10
73mm X L-80 Pup Jt.	1.87	1872.23
Ported Differential Sub	0.27	1871.96
73mmXL-80 Pup Joint	0.71	1871.25
Separation sub - shift up	0.38	1870.87
73mmXL-80 Pup Joint	3.07	1867.80
Kobe Sub	0.14	1867.66
Baker "R" Nipple	0.33	1867.33
73mmXL-80 Pup Joint	3.09	1864.24
Baker Lok Set Packer	1.13	1863.11
On/Off Tool with "F" Profile	0.48	1862.63
73mmXL-80 Pup Joint	1.28	1861.35
73mmXL-80 Pup Joint & Long Joint	11.48	1849.87
193 X 73mm X L-80 tubing joints	1835.32	14.55
2X73mmXL-80 Pup Joints+long joint	11.95	2.60
Tubing Hanger+KB-Compression	4.45	-1.85
Wireline Correction	-1.85	0.00

BHP and Sucker rods

Perforations & Formation

1875.0 to 1882.0 Mattson

to

Comments regarding reason for workover: (deviated well, rod wear, scale, etc.)

This is for first TCP run

PARAMOUNT RES LTD.

TUBULAR TALLY

Well: Para et al Fort Liard A-01 **Date:** 2/10/00

Size: 73.00 Weight: 9.67 Thread: EUE **Page:** 2

Collar: Short Grade: L-80 Make: Nusco

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
101	9.63	111	9.64	121	9.55	131	9.52	141	9.31
102	9.64	112	9.64	122	9.58	132	9.48	142	9.52
103	9.64	113	9.62	123	9.58	133	9.51	143	9.47
104	9.65	114	9.64	124	9.54	134	9.46	144	9.44
105	9.64	115	9.65	125	9.60	135	9.18	145	9.44
106	9.64	116	9.60	126	9.54	136	9.49	146	9.59
107	9.64	117	9.58	127	9.61	137	9.50	147	9.60
108	9.63	118	9.63	128	9.64	138	9.53	148	9.51
109	9.64	119	9.55	129	9.48	139	9.45	149	9.35
110	9.64	120	9.61	130	9.48	140	9.60	150	9.49
Total	96.39	Total	96.16	Total	95.60	Total	94.72	Total	94.72

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
151	9.50	161	9.42	171	9.50	181	9.45	191	9.36
152	9.50	162	9.48	172	9.44	182	9.47	192	9.51
153	9.44	163	9.44	173	9.17	183	9.60	193	9.52
154	9.59	164	9.44	174	9.44	184	9.31	194	9.59
155	9.59	165	9.47	175	9.47	185	9.47	195	9.59
156	9.46	166	9.46	176	9.47	186	9.54	196	[illegible]
157	9.59	167	9.51	177	9.52	187	9.45	197	[illegible]
158	9.49	168	9.15	178	9.36	188	9.45	198	[illegible]
159	9.50	169	9.46	179	9.46	189	9.44	199	[illegible]
160	9.44	170	9.48	180	9.60	190	9.50	200	[illegible]
Total	95.10	Total	94.31	Total	94.43	Total	94.68	Total	94.34

Joint #	Length
101-110	96.39
111-120	96.16
121-130	95.60
131-140	94.72
141-150	94.72
151-160	95.10
161-170	94.31
171-180	94.43
181-190	94.68
191-200	94.34
Total	950.45

TALLY SUMMARY

Joints	Length

Brought forward	950.82
Page total	950.45
Total on location	1901.27
Total left out (including L.J.)	46.77
Total permanently in hole	1854.50

Remarks: (Note transfer of left-out joints to where and by whom)

This tally is for TCP run #! To perf 1875-1882

See Well Schematic #1

PARAMOUNT RES LTD.

TUBULAR TALLY

Well: Para et al Fort Liard A-01 **Date:** 2/10/00

Size: 73.00 Weight: 9.67 Thread: EUE Page: 1

Collar: Short Grade: L-80 Make: Nusco

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
1	9.58	11	9.60	21	9.50	31	9.60	41	9.54
2	9.59	12	9.47	22	9.50	32	9.46	42	9.48
3	9.50	13	9.49	23	9.54	33	9.48	43	9.45
4	9.45	14	9.47	24	9.52	34	9.50	44	9.59
5	9.51	15	9.52	25	9.60	35	9.48	45	9.51
6	9.60	16	9.46	26	9.53	36	9.52	46	9.51
7	9.53	17	9.60	27	9.71	37	9.52	47	9.50
8	9.61	18	9.46	28	9.34	38	9.47	48	9.46
9	9.54	19	9.44	29	9.60	39	9.52	49	9.60
10	9.49	20	9.45	30	9.33	40	9.49	50	9.53
Total	95.40	Total	94.96	Total	95.17	Total	95.04	Total	95.17

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
51	9.59	61	9.48	71	9.52	81	9.52	91	9.52
52	9.60	62	9.46	72	9.46	82	9.51	92	9.55
53	9.52	63	9.48	73	9.33	83	9.50	93	9.54
54	9.07	64	9.44	74	9.52	84	9.56	94	9.49
55	9.47	65	9.45	75	9.61	85	9.61	95	9.45
56	9.48	66	9.46	76	9.52	86	9.54	96	9.51
57	9.49	67	9.45	77	9.60	87	9.45	97	9.46
58	9.53	68	9.46	78	9.51	88	9.59	98	9.61
59	9.45	69	9.48	79	9.50	89	9.50	99	9.63
60	9.45	70	9.53	80	9.52	90	9.48	100	9.63
Total	94.65	Total	94.69	Total	95.09	Total	95.26	Total	95.39

Joint #	Length
1-10	95.40
11-20	94.96
21-30	95.17
31-40	95.04
41-50	95.17
51-60	94.65
61-70	94.69
71-80	95.09
81-90	95.26
91-100	95.39
Total	950.82

TALLY SUMMARY

Joints	Length	
		Brought forward
		Page total 950.82
		Total on location
		Total left out (including L.I.)
		Total permanently in hole

Remarks: (Note transfer of left-out joints to where and by whom)

PARAMOUNT RES LTD.

WELLBORE SCHEMATIC 1

Well: Para et al Fort Liard A-01 Date: 2/19/00

GL 517.40 KB 522.65 CF 517.15 THF 517.75

PBTD 1866.00 TD 2046.00

Surface Casing

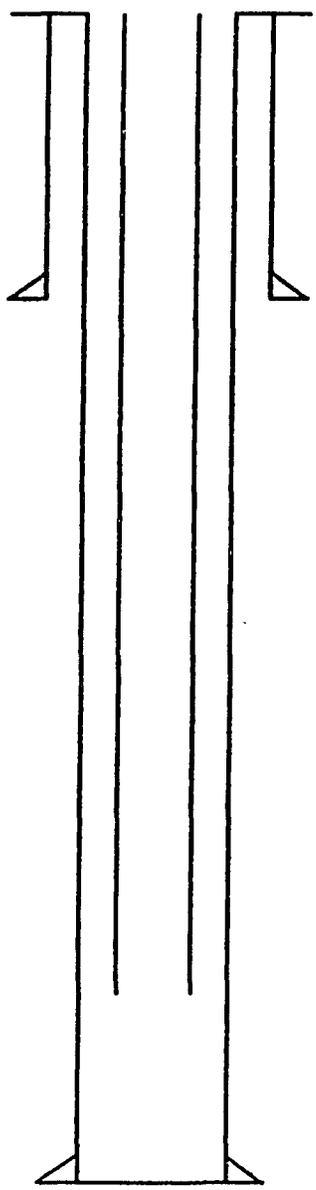
Size: 244.5 Weight: 48.1

Depth 503.00

Production Casing

Size: 177.8 Weight: 34.26

Depth: 2046.00 PBTD: 1985.00



Wellhead

Make: Vetco Gray 346mm X 179mm X21MPa

Spool:	Size:	346X298	Rating	21MPa	S/F F
Masters:	Size:	79	Rating	21MPa	S/F F
Wings:	Size	52	Rating	21MPa	S/F F

Tubing

Size: 73 Weight: 10 9.67 Depth: 1819.81

Bottom Hole Assembly (Bottom up)	Length	Top depth
127mm Bull Plug & Blank Gun	1.24	1840.50
127mm X 60deg.X17spmX36gram Gun	1.50	1839.00
127mm Blank Gun	4.50	1834.50
127mm X 60deg.X17spmX36gram Gun	2.50	1832.00
73mm - Firing Head	0.56	1831.44
73mm X L-80 Pup Jt.	1.95	1829.49
Ported Differential Sub	0.27	1829.22
73mmXL-80 Pup Joint	0.71	1828.51
Separation sub - shift up	0.38	1828.13
73mmXL-80 Pup Joint	3.08	1825.05
Kobe Sub	0.14	1824.91
Baker "R" Nipple	0.33	1824.58
73mmXL-80 Pup Joint	3.09	1821.49
Baker Lok Set Packer	1.20	1820.29
On/Off Tool with "F" Profile	0.48	1819.81
73mmXL-80 Pup Joint & Long Joint	11.60	1808.21
190 X 73mm X L-80 tubing joints	1805.77	2.44
73mmX88.9mm XO	0.23	2.21
Tubing Hanger+KB-Compression	4.08	-1.87
Wireline Correction	-1.85	-0.02

BHP and Sucker rods

Perforations & Formation

1832.0	to	1834.5	Mattson
1839.0	to	1840.5	Mattson

Comments regarding reason for workover: (deviated well, rod wear, scale, etc.)

This is for second TCP run to perf the above intervals

PARAMOUNT RES LTD.

TUBULAR TALLY

Well: Para et al Fort Liard A-01 **Date:** 2/19/00

Size: 73.00 Weight: 9.67 Thread: EUE **Page:** 2

Collar: Short Grade: L-80 Make: Nusco

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
101	9.63	111	9.64	121	9.55	131	9.52	141	9.31
102	9.64	112	9.64	122	9.58	132	9.48	142	9.52
103	9.64	113	9.62	123	9.58	133	9.51	143	9.47
104	9.65	114	9.64	124	9.54	134	9.46	144	9.44
105	9.64	115	9.65	125	9.60	135	9.18	145	9.44
106	9.64	116	9.60	126	9.54	136	9.49	146	9.59
107	9.64	117	9.58	127	9.61	137	9.50	147	9.60
108	9.63	118	9.63	128	9.64	138	9.53	148	9.51
109	9.64	119	9.55	129	9.48	139	9.45	149	9.35
110	9.64	120	9.61	130	9.48	140	9.60	150	9.49
Total	96.39	Total	96.16	Total	95.60	Total	94.72	Total	94.72

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
151	9.50	161	9.42	171	9.50	181	9.45	191	9.36
152	9.50	162	9.48	172	9.44	182	9.47	192	
153	9.44	163	9.44	173	9.17	183	9.6	193	
154	9.59	164	9.44	174	9.44	184	9.31	194	
155	9.59	165	9.47	175	9.47	185	9.47	195	
156	9.46	166	9.46	176	9.47	186	9.54	196	
157	9.59	167	9.51	177	9.52	187	9.45	197	
158	9.49	168	9.15	178	9.36	188	9.45	198	
159	9.50	169	9.46	179	9.46	189	9.44	199	
160	9.44	170	9.48	180	9.60	190	9.50	200	8.66
Total	95.10	Total	94.31	Total	94.43	Total	94.68	Total	94.34

Joint #	Length
101-110	96.39
111-120	96.16
121-130	95.60
131-140	94.72
141-150	94.72
151-160	95.10
161-170	94.31
171-180	94.43
181-190	94.68
191-200	94.34
Total	950.45

TALLY SUMMARY

Joints	Length

Brought forward	950.82
Page total	950.45
Total on location	1901.27
Total left out (including L.J.)	85.92
Total permanently in hole	1815.35

Remarks: (Note transfer of left-out joints to where and by whom)

Tally for second TCP run to perf 1832-1834.5 & 1839-1840.5

See Well Schematic #2

PARAMOUNT RES LTD.

TUBULAR TALLY

Well: Para et al Fort Liard A-01 Date: 2/19/00

Size: 73.00 Weight: 9.67 Thread: EUE Page: 1

Collar: Short Grade: L-80 Make: Nusco

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
1	9.58	11	9.60	21	9.50	31	9.60	41	9.54
2	9.59	12	9.47	22	9.50	32	9.46	42	9.48
3	9.50	13	9.49	23	9.54	33	9.48	43	9.45
4	9.45	14	9.47	24	9.52	34	9.50	44	9.59
5	9.51	15	9.52	25	9.60	35	9.48	45	9.51
6	9.60	16	9.46	26	9.53	36	9.52	46	9.51
7	9.53	17	9.60	27	9.71	37	9.52	47	9.50
8	9.61	18	9.46	28	9.34	38	9.47	48	9.46
9	9.54	19	9.44	29	9.60	39	9.52	49	9.60
10	9.49	20	9.45	30	9.33	40	9.49	50	9.53
Total	95.40	Total	94.96	Total	95.17	Total	95.04	Total	95.17

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
51	9.59	61	9.48	71	9.52	81	9.52	91	9.52
52	9.60	62	9.46	72	9.46	82	9.51	92	9.55
53	9.52	63	9.48	73	9.33	83	9.50	93	9.54
54	9.07	64	9.44	74	9.52	84	9.56	94	9.49
55	9.47	65	9.45	75	9.61	85	9.61	95	9.45
56	9.48	66	9.46	76	9.52	86	9.54	96	9.51
57	9.49	67	9.45	77	9.60	87	9.45	97	9.46
58	9.53	68	9.46	78	9.51	88	9.59	98	9.61
59	9.45	69	9.48	79	9.50	89	9.50	99	9.63
60	9.45	70	9.53	80	9.52	90	9.48	100	9.63
Total	94.65	Total	94.69	Total	95.09	Total	95.26	Total	95.39

Joint #	Length
1-10	95.40
11-20	94.96
21-30	95.17
31-40	95.04
41-50	95.17
51-60	94.65
61-70	94.69
71-80	95.09
81-90	95.26
91-100	95.39
Total	950.82

TALLY SUMMARY

Joints	Length	
		Brought forward
		Page total 950.82
		Total on location
		Total left out (including L.J.)
		Total permanently in hole

Remarks: (Note transfer of left-out joints to where and by whom)

PARAMOUNT RES LTD.

WELLBORE SCHEMATIC 1

Well: Para et al Fort Liard A-01 Date: 2/23/00

GL 517.40 KB 522.65 CF 517.15 THF 517.75

PBTD 1825.00 TD 2046.00

Surface Casing

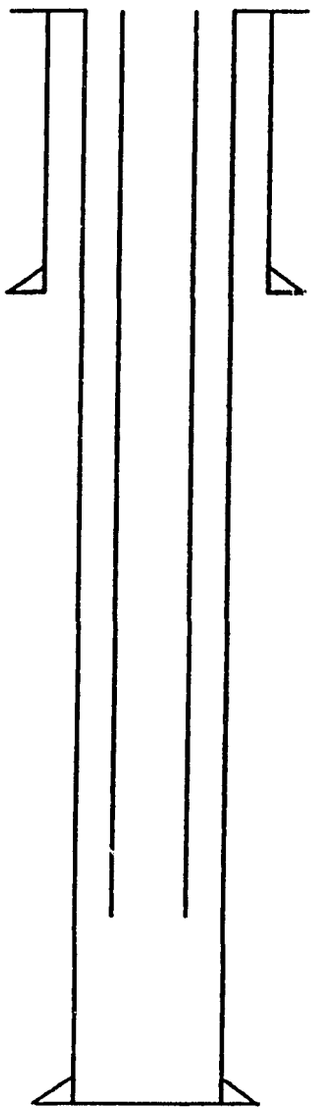
Size: 244.5 Weight: 48.1

Depth 503.00

Production Casing

Size: 177.8 Weight: 34.26

Depth: 2046.00 PBTD: 1985.00



Wellhead

Make: Vetco Gray 346mm X 179mm X21MPa

Spool:	Size:	346X298	Rating	21MPa	S/F F
Masters:	Size:	79	Rating	21MPa	S/F F
Wings:	Size	52	Rating	21MPa	S/F F

Tubing

Size: 73 Weight: 10 9.67 Depth: 1773.81

Bottom Hole Assembly (Bottom up)	Length	Top depth
127mm Bull Plug	0.30	1791.00
127mm X 60deg.X17spmX36gram Gun	5.00	1786.00
73mm - Firing Head	0.56	1785.44
73mm X L-80 Pup Jt.	1.95	1783.49
Ported Differential Sub	0.27	1783.22
73mmXL-80 Pup Joint	0.71	1782.51
Separation sub - shift up	0.38	1782.13
73mmXL-80 Pup Joint	3.08	1779.05
Kobe Sub	0.14	1778.91
Baker "R" Nipple	0.33	1778.58
73mmXL-80 Pup Joint	3.09	1775.49
Baker Lok Set Packer	1.20	1774.29
On/Off Tool with "F" Profile	0.48	1773.81
73mmXL-80 Pup Joint & Long Joint	11.43	1762.38
185X 73mm X L-80 tubing joints	1759.52	2.86
73mmX88.9mm XO	0.23	2.63
Tubing Hanger+KB-Compression	4.46	-1.83
Wireline Correction	-1.85	0.02

BHP and Sucker rods

Perforations & Formation

1786.0	to	1791.0	Mattson
	to		Mattson

Comments regarding reason for workover: (deviated well, rod wear, scale, etc.)

This is for Third TCP run to perf the above intervals

PARAMOUNT RES LTD.

TUBULAR TALLY

Well: Para et al Fort Liard A-01 Date: 2/23/00

Size: 73.00 Weight: 9.67 Thread: EUE Page: 2

Collar: Short Grade: L-80 Make: Nusco

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
101	9.63	111	9.64	121	9.55	131	9.52	141	9.31
102	9.64	112	9.64	122	9.58	132	9.48	142	9.52
103	9.64	113	9.62	123	9.58	133	9.51	143	9.47
104	9.65	114	9.64	124	9.54	134	9.46	144	9.44
105	9.64	115	9.65	125	9.60	135	9.18	145	9.44
106	9.64	116	9.60	126	9.54	136	9.49	146	9.59
107	9.64	117	9.58	127	9.61	137	9.50	147	9.60
108	9.63	118	9.63	128	9.64	138	9.53	148	9.51
109	9.64	119	9.55	129	9.48	139	9.45	149	9.35
110	9.64	120	9.61	130	9.48	140	9.60	150	9.49
Total	96.39	Total	96.16	Total	95.60	Total	94.72	Total	94.72

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
151	9.50	161	[redacted]	171	9.50	181	9.45	191	[redacted]
152	9.50	162	9.48	172	9.44	182	9.47	192	
153	9.44	163	9.44	173	9.17	183	9.6	193	
154	9.59	164	9.44	174	9.44	184	9.31	194	
155	9.59	165	9.47	175	9.47	185	9.47	195	
156	9.46	166	9.46	176	9.47	186	9.54	196	
157	9.59	167	9.51	177	9.52	187	9.45	197	
158	9.49	168	9.15	178	[redacted]	188	9.45	198	
159	9.50	169	9.46	179	9.46	189	[redacted]	199	
160	9.44	170	9.48	180	9.60	190	9.50	200	
Total	95.10	Total	94.31	Total	94.43	Total	94.68	Total	94.34

Joint #	Length
101-110	96.39
111-120	96.16
121-130	95.60
131-140	94.72
141-150	94.72
151-160	95.10
161-170	94.31
171-180	94.43
181-190	94.68
191-200	94.34
Total	950.45

TALLY SUMMARY

Joints	Length

Brought forward	950.82
Page total	950.45
Total on location	1901.27
Total left out (including L.J.)	132.16
Total permanently in hole	1769.11

Remarks: (Note transfer of left-out joints to where and by whom)

Tally for Third TCP run to perf 1786-1791

See Well Schematic #3

PARAMOUNT RES LTD.

TUBULAR TALLY

Well: Para et al Fort Liard A-01 **Date:** 2/23/00

Size: 73.00 Weight: 9.67 Thread: EUE Page: 1

Collar: Short Grade: L-80 Make: Nusco

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
1	9.58	11	9.60	21	9.50	31	9.60	41	9.54
2	9.59	12	9.47	22	9.50	32	9.46	42	9.48
3	9.50	13	9.49	23	9.54	33	9.48	43	9.45
4	9.45	14	9.47	24	9.52	34	9.50	44	9.59
5	9.51	15	9.52	25	9.60	35	9.48	45	9.51
6	9.60	16	9.46	26	9.53	36	9.52	46	9.51
7	9.53	17	9.60	27	9.71	37	9.52	47	9.50
8	9.61	18	9.46	28	9.34	38	9.47	48	9.46
9	9.54	19	9.44	29	9.60	39	9.52	49	9.60
10	9.49	20	9.45	30	9.33	40	9.49	50	9.53
Total	95.40	Total	94.96	Total	95.17	Total	95.04	Total	95.17

Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length	Joint #	Length
51	9.59	61	9.48	71	9.52	81	9.52	91	9.52
52	9.60	62	9.46	72	9.46	82	9.51	92	9.55
53	9.52	63	9.48	73	9.33	83	9.50	93	9.54
54	9.07	64	9.44	74	9.52	84	9.56	94	9.49
55	9.47	65	9.45	75	9.61	85	9.61	95	9.45
56	9.48	66	9.46	76	9.52	86	9.54	96	9.51
57	9.49	67	9.45	77	9.60	87	9.45	97	9.46
58	9.53	68	9.46	78	9.51	88	9.59	98	9.61
59	9.45	69	9.48	79	9.50	89	9.50	99	9.63
60	9.45	70	9.53	80	9.52	90	9.48	100	9.63
Total	94.65	Total	94.69	Total	95.09	Total	95.26	Total	95.39

Joint #	Length
1-10	95.40
11-20	94.96
21-30	95.17
31-40	95.04
41-50	95.17
51-60	94.65
61-70	94.69
71-80	95.09
81-90	95.26
91-100	95.39
Total	950.82

TALLY SUMMARY

Joints	Length	
		Brought forward
		Page total
		Total on location
		Total left out (including L.J.)
		Total permanently in hole

Remarks: (Note transfer of left-out joints to where and by whom)

F. ENVIRONMENTAL WELL ANALYSIS (as per Land use permit)

G. APPENDICES TO WELL HISTORY

i) Core analysis

ii) Fluid Analysis

iii) Bit Record

iv) Drilling morming reports

v) Completion morning reports

vi) Directional Surveys

vii) Casing Summaries

viii) Well Logs

AGAT® Laboratories

FINAL CORE ANALYSIS REPORT

PARA et al LIARD

a - 1

Prepared for:

PARAMOUNT RESOURCES LTD.

RC8208

May, 1999

"In Pursuit of Excellence"

- AIHA Accredited
- CAEAL Accredited
- Registered with APEGGA

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Porosity Frequency Distribution ..... Figure 2

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Porosity - Permeability (Kmax) Correlation ..... Figure 4

General Information

General Lithology

Sample Handling and Analysis Information

Abbreviations

Core Logs

Bulk Density Logs

CORE ANALYSIS DATA

PARA et al LIARD

a - 1

COMPANY : PARAMOUNT RESOURCES LTD
WELL NAME : PARA et al LIARD
LOCATION : a - 1
FORMATION :
DRILLING FLUID : INVERT MUD

DATE : 05-04-1999
W/O No : RC8208

ROUTINE CORE ANALYSIS

Sample	Interval (m) Top	Interval (m) Base	Rep Thick (m)	Sample Length (m)	Gas Permeability Kmax (mD)	Gas Permeability K90 (mD)	Gas Permeability Kv (mD)	Capacity Kmax mD·m	Porosity	Capacity Ø·m	Density (Kg/m³) Bulk	Density (Kg/m³) Grain	Residual Saturation Oil	Residual Saturation Water	Remarks
			CORE NO. 1 1333.00 - 1351.40		(CUT / RECEIVED = 18.40 / 18.40 m			TOTAL BOXES = 13)							
															sh:ss
NA	1333.00	1333.73	0.73	-	-	-	-	-	-	-	-	-	-	-	ss:vfgr:lam:calc
001	1333.73	1333.88	0.15	0.09	0.02	0.02	0.01	0.00	0.047	0.007	2540	2660	-	-	ss:vfgr:calc:sid
002	1333.88	1334.13	0.25	0.11	0.02	0.02	0.01	0.01	0.046	0.012	2580	2700	-	-	
															ss:vfgr:calc:dol:sid
003	1334.13	1334.24	0.11	0.05	0.01	0.01	<.01	0.00	0.032	0.004	2910	3010	-	-	ss:vfgr:calc
SP001P	1334.24	1334.38	0.14	-	0.07	-	-	0.01	0.073	0.010	2470	2670	-	-	sh:ss
NA	1334.38	1335.35	0.97	-	-	-	-	-	-	-	-	-	-	-	ss:vfgr:calc:dol:sid:pyr
004	1335.35	1335.49	0.14	0.07	<.01	<.01	<.01		0.007	0.001	3050	3070	-	-	ss:vfgr:lam:calc:pyr
SP002P	1335.49	1335.57	0.08	-	0.06	-	-	0.00	0.053	0.004	2540	2680	-	-	
															sh:ss
NA	1335.57	1336.95	1.38	-	-	-	-	-	-	-	-	-	-	-	ss:vfgr:calc:pyr
SP003P	1336.95	1337.05	0.10	-	0.04	-	-	0.00	0.041	0.004	2560	2670	-	-	sh:ss
NA	1337.05	1351.40	14.35	-	-	-	-	-	-	-	-	-	-	-	

AGAT® Laboratories

COMPANY : PARAMOUNT RESOURCES LTD
WELL NAME : PARA et al LIARD
LOCATION : a - 1
FORMATION :
DRILLING FLUID : INVERT MUD

CORE ANALYSIS - QUALITY CONTROL REPORT

CORE NO. 1 1333.00 - 1351.40 (CUT / RECEIVED = 18.40 / 18.40 m TOTAL BOXES = 13)

NA	1333.00 - 1333.73	
001	1333.73 - 1333.88	
002	1333.88 - 1334.13	
- GRAIN DENSITY (2700) OUT OF LIMITS FOR LITHOLOGY SPECIFIED (ss [2580-2690])		Calcareous;sideritic;results verified
003	1334.13 - 1334.24	
- GRAIN DENSITY (3010) OUT OF LIMITS FOR LITHOLOGY SPECIFIED (ss [2580-2690])		Calcareous;dolomitic;sideritic;results verified
SP001P	1334.24 - 1334.38	
NA	1334.38 - 1335.35	
004	1335.35 - 1335.49	
- GRAIN DENSITY (3070) OUT OF LIMITS FOR LITHOLOGY SPECIFIED (ss [2580-2690])		Calcareous;sideritic;pyritic;results verified
SP002P	1335.49 - 1335.57	
NA	1335.57 - 1336.95	
SP003P	1336.95 - 1337.05	
NA	1337.05 - 1351.40	

Approved : 05-04-1999

Quality Control Supervisor Date

AGAT® Laboratories

COMPANY : PARAMOUNT RESOURCES LTD
WELL NAME : PARA et al LIARD
LOCATION : a - 1
FORMATION :
DRILLING FLUID : INVERT MUD

CALCULATED DATA REPORT

Sample	Interval (m) Top	Base	Rep Thick (m)	Rep Cuml. (m)	Porosity	Porosity * Rep. Ø·m	Thickness Cuml.	Wt. Avg. Porosity (Arith.)	Kmax (mD)	Kmax * Rep mD·m	Thickness Cuml.	Wt.Avg Kmax (Arith.)
CORE NO. 1 1333.00 - 1351.40 (CUT / RECEIVED = 18.40 / 18.40 m TOTAL BOXES = 13)												
NA	1333.00	1333.73	0.73	-	-	-	-	-	-	-	-	-
001	1333.73	1333.88	0.15	0.15	0.047	0.007	0.007	0.047	0.02	0.00	0.00	0.02
002	1333.88	1334.13	0.25	0.40	0.048	0.012	0.019	0.047	0.02	0.01	0.01	0.02
003	1334.13	1334.24	0.11	0.51	0.032	0.004	0.023	0.045	0.01	0.00	0.01	0.02
SP001P	1334.24	1334.38	0.14	0.65	0.073	0.010	0.033	0.051	0.07	0.01	0.02	0.03
NA	1334.38	1335.35	0.97	-	-	-	-	-	-	-	-	-
004	1335.35	1335.49	0.14	0.79	0.007	0.001	0.034	0.043	<.01		0.02	0.02
SP002P	1335.49	1335.57	0.08	0.87	0.053	0.004	0.038	0.044	0.06	0.00	0.02	0.03
NA	1335.57	1336.95	1.38	-	-	-	-	-	-	-	-	-
SP003P	1336.95	1337.05	0.10	0.97	0.041	0.004	0.042	0.043	0.04	0.00	0.03	0.03
NA	1337.05	1351.40	14.35	-	-	-	-	-	-	-	-	-

AGAT Laboratories

COMPANY : PARAMOUNT RESOURCES LTD
WELL NAME : PARA et al LIARD
LOCATION : a - 1
FORMATION :
DRILLING FLUID : INVERT MUD

PAGE : 4
DATE : 05-04-1999
W/O No : RC8208

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

GROUPING BY POROSITY RANGES

Porosity Range		Samples		Metres		Wt. Avg. Porosity	Wt. Avg. Kmax		Frequency %	
		In Range	Cuml.	In Range	Cuml.	(Arith.)	(Arith.)	Geom	In Rng	Cuml.
0.001 -	0.0190	1	1	0.14	0.14	0.007	0.01	0.01	14.43	14.43
0.020 -	0.0390	1	2	0.11	0.25	0.032	0.01	0.01	11.34	25.77
0.040 -	0.0599	4	6	0.58	0.83	0.046	0.03	0.03	59.79	85.57
0.060 -	0.0799	1	7	0.14	0.97	0.073	0.07	0.07	14.43	100.00

AGAT® Laboratories

COMPANY : PARAMOUNT RESOURCES LTD
WELL NAME : PARA et al LIARD
LOCATION : a - 1
FORMATION :
DRILLING FLUID : INVERT MUD

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

GROUPING BY PERMEABILITY RANGES

Permeability Range		Samples In Range	Samples Cuml.	Metres In Range	Metres Cuml.	Wt. Avg. Porosity (Arith.)	Wt. Avg. Kmax (Arith.)	Wt. Avg. Kmax Geom	Frequency % In Rng	Frequency % Cuml.
0.010 -	0.0190	1	1	0.11	0.11	0.032	0.01	0.01	13.25	13.25
0.020 -	0.0390	2	3	0.40	0.51	0.046	0.02	0.02	48.19	61.45
0.040 -	0.0790	3	6	0.32	0.83	0.058	0.06	0.06	38.55	100.00

AGAT® Laboratories

COMPANY : PARAMOUNT RESOURCES LTD
WELL NAME : PARA et al LIARD
LOCATION : a - 1
FORMATION :
DRILLING FLUID : INVERT MUD

PAGE : 6
DATE : 05-04-1999
W/O No : RC8208

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

POROSITY-METRES OF STORAGE CAPACITY LOST FOR SELECTED POROSITY CUT OFF

Porosity Cut off	Metres Lost	Metres Remaining	Capacity Lost Por-Metres	Capacity Lost %	Capacity Remaining Por-Metres	Capacity Remaining %	Wt. Avg. Arith. Mean	Wt. Avg. Arith. Median
-	0.00	0.97	-	0.00	0.042	100.00	0.043	
0.020	0.14	0.83	0.001	2.36	0.041	97.64	0.049	
0.040	0.25	0.72	0.004	10.81	0.037	89.19	0.052	
0.060	0.83	0.14	0.031	75.44	0.010	24.56	0.073	
0.080	0.97	0.00	0.042	100.00	-	0.00	0.00	

Total Storage Capacity in Porosity-Metres = 0.042

AGAT® Laboratories

COMPANY : PARAMOUNT RESOURCES LTD
WELL NAME : PARA et al LIARD
LOCATION : a - 1
FORMATION :
DRILLING FLUID : INVERT MUD

PAGE : 7
DATE : 05-04-1999
W/O No : RC8208

STATISTICAL DATA FOR POROSITY AND PERMEABILITY HISTOGRAM

MILLIDARCY-METRES OF FLOW CAPACITY FOR SELECTED PERMEABILITY CUT OFF

Permeability Cut off	Metres		Capacity Lost		Capacity Remaining		Wt. Avg. Arith.	
	Lost	Remaining	mD-m	%	mD-m	%	Mean	Median
0.000	0.00	0.83	0.000	0.00	0.028	100.00	0.000	
0.010	0.11	0.72	0.001	3.97	0.027	96.03	0.001	
0.020	0.51	0.32	0.009	32.85	0.019	67.15	0.010	
0.040	0.61	0.22	0.013	47.29	0.015	52.71	0.023	
0.080	0.83	0.00	0.028	100.00	0.000	0.00	0.051	

Total Flow Capacity in MilliDarcy-Metres (Arithmetic) = 0.028

AGAT® Laboratories

COMPANY : PARAMOUNT RESOURCES LTD
WELL NAME : PARA et al LIARD
LOCATION : a - 1
FORMATION :
DRILLING FLUID : INVERT MUD

SUMMARY OF CORE DATA REPORT

PERMEABILITY RANGES, MILLIDARCY

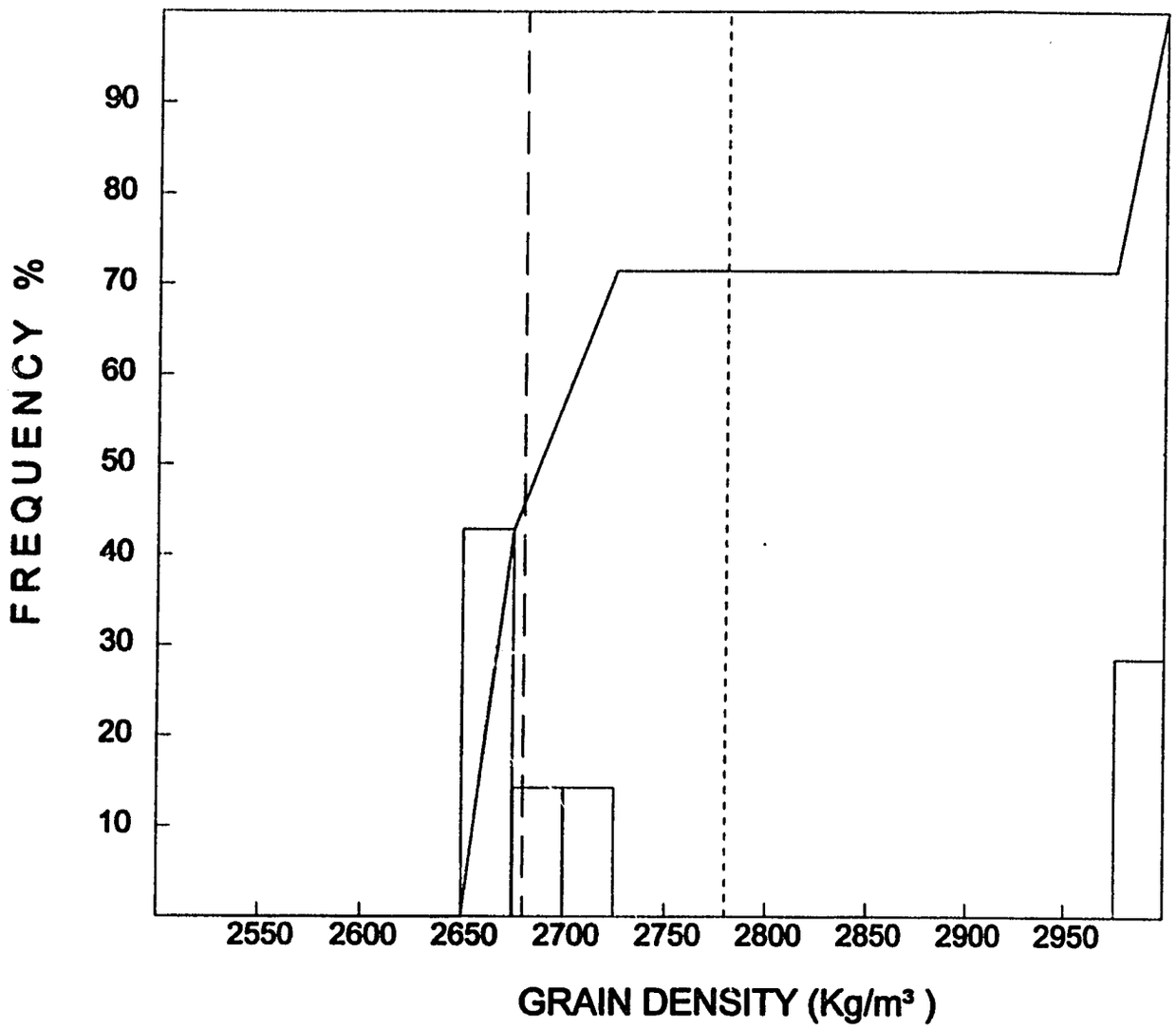
	Total	100.00 +	10.00 - 99.99	1.00 - 9.99	0.50 - 0.99	0.10 - 0.49	0.01 - 0.09	< 0.01
Thickness (m)	0.83	0.00	0.00	0.00	0.00	0.00	0.83	0.00
Fraction of Analyzed Core		0.000	0.000	0.000	0.000	0.000	1.000	0.000
Porosity Thickness (por-m)	0.041	0.000	0.000	0.000	0.000	0.000	0.041	0.000
Permeability Thickness (mD-m)	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Wt. Average Porosity	0.049	0.000	0.000	0.000	0.000	0.000	0.049	0.000
Wt. Average Permeability	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Wt. Average Residual Oil	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wt. Average Residual Water	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Wt. Average (geom.) Kmax. mD for all Samples = 0.03
Wt. Average (harm.) Kmax. mD for all Samples = 0.02

AGAT® Laboratories

Company :	PARAMOUNT RESOURCES LTD		
Location :	a - 1	FIGURE :	1
Interval :	1353.00 - 1351.40m	W/O :	RC8208
Formation :		Date :	05-04-1999

GRAIN DENSITY DISTRIBUTION

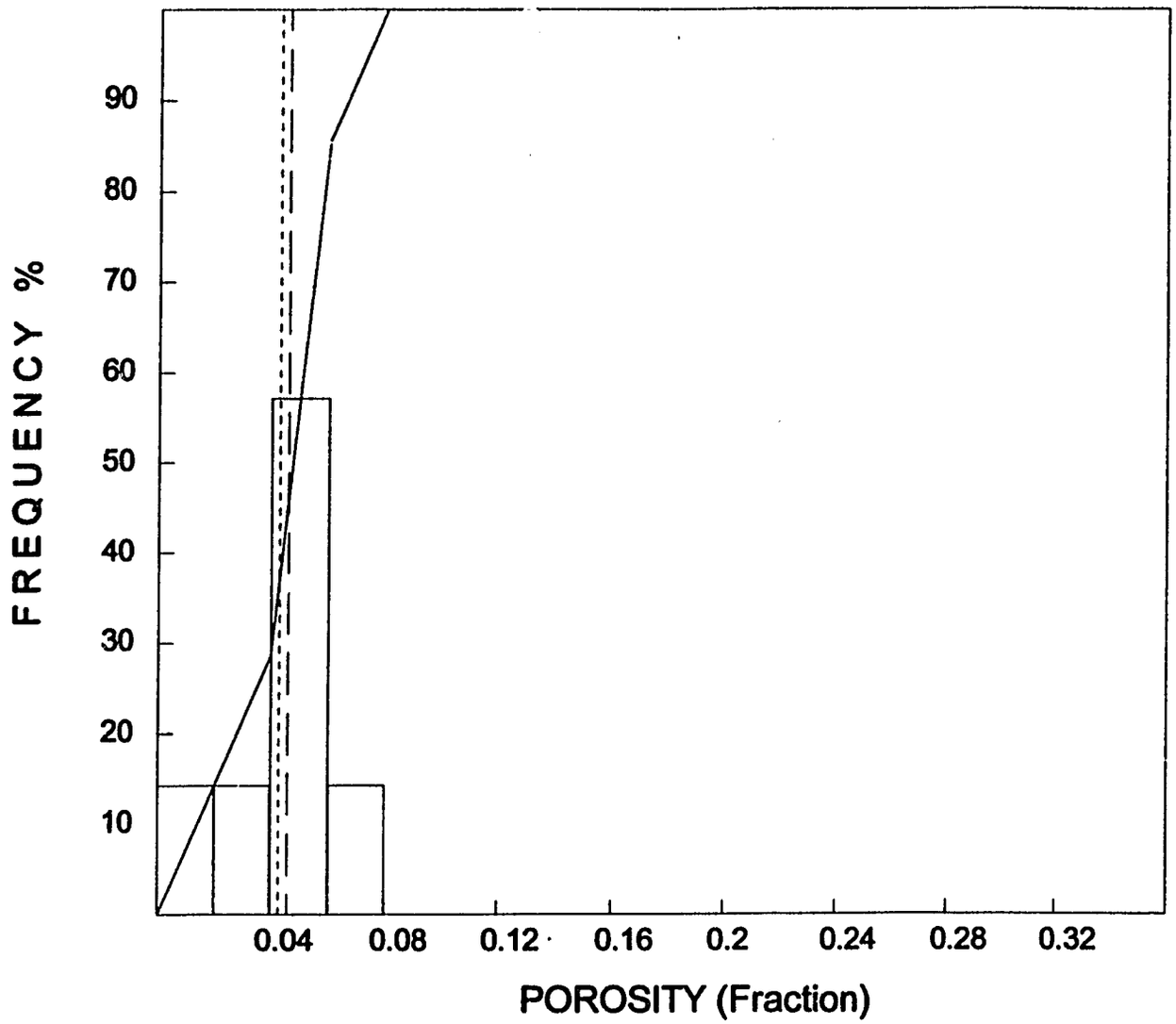


Arithmetic Mean	.....	Mean: 2780
Median	- - - - - - - -	Median: 2680
Cum. Frequency %	_____	

AGAT Laboratories

Company :	PARAMOUNT RESOURCES LTD		
Location :	a - 1	FIGURE :	2
Interval :	1333.00 - 1351.40m	W/O :	RC8208
Formation :		Date :	05-04-1999

POROSITY DISTRIBUTION

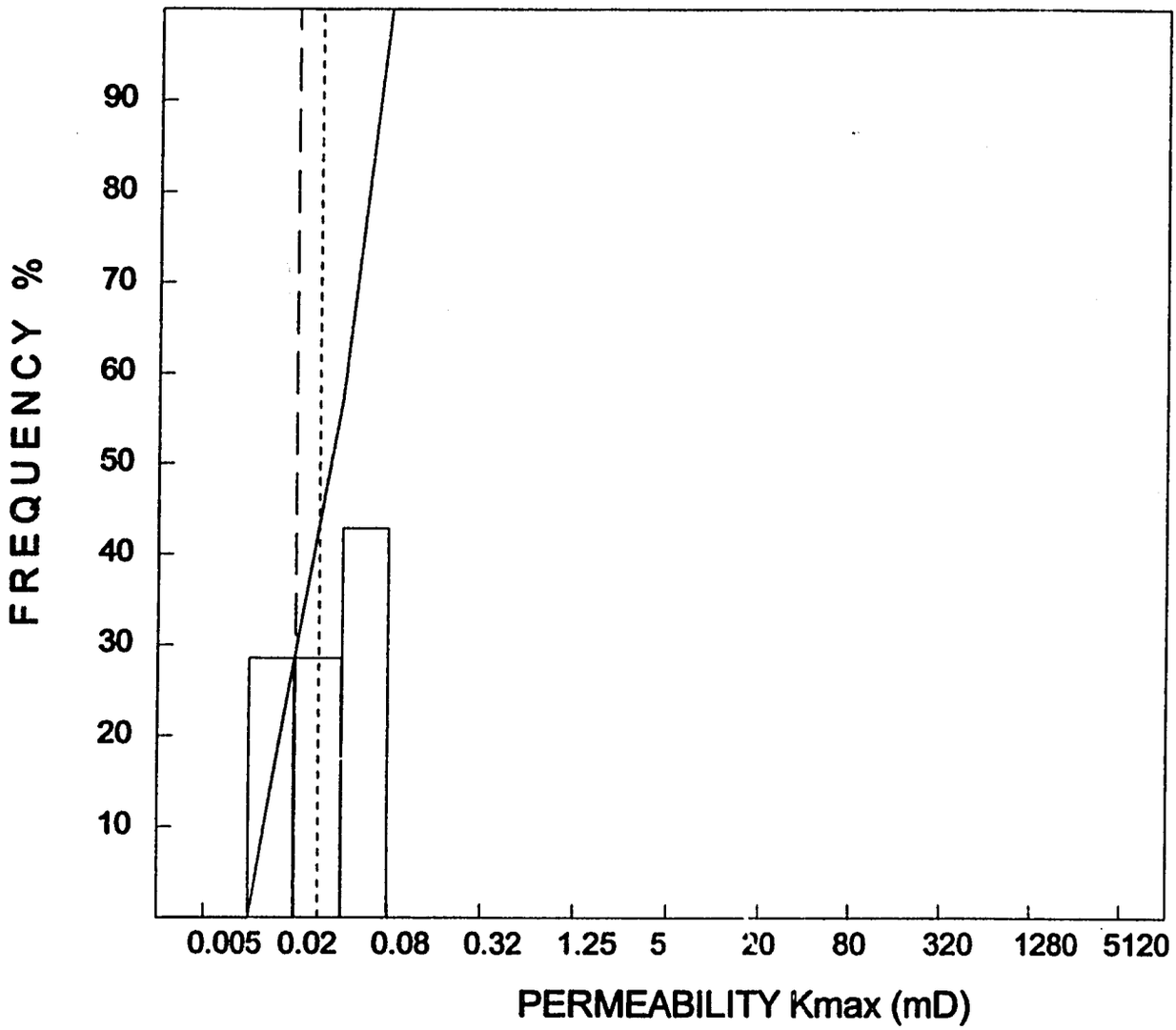


Arithmetic Mean	.....	Mean: 0.043
Median	- - - - - - - -	Median: 0.046
Cum. Frequency %	_____	

AGAT Laboratories

Company :	PARAMOUNT RESOURCES LTD		
Location :	a - 1	FIGURE :	3
Interval :	1333.00 - 1351.40m	W/O :	RC8208
Formation :		Date :	05-04-1999

PERMEABILITY Kmax DISTRIBUTION

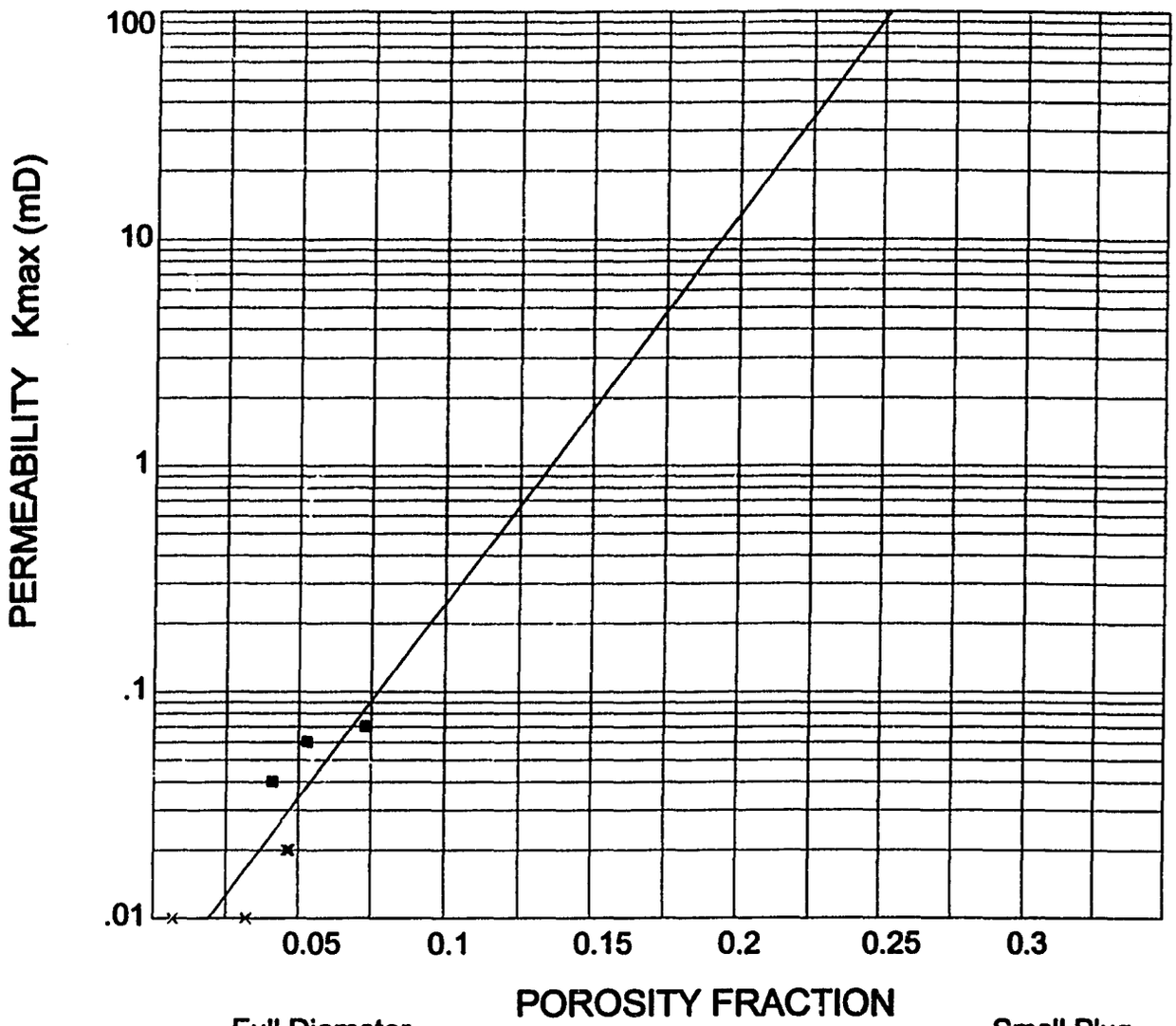


Arithmetic Mean	.....	Mean: 0.03
Median	- - - - - - - - -	Median: 0.02
Cum. Frequency %	_____	

AGAT Laboratories

Company :	PARAMOUNT RESOURCES LTD		
Location :	a - 1	FIGURE :	4
Interval :	1333.00 - 1351.40m	W/O :	RC8208
Formation :		Date :	05-04-1999

POROSITY-PERMEABILITY CORRELATION



Equation of Line :	Log (Kmax) = -2.33 + 17.17* Porosity
Correlation Coefficient	r = 0.83

AGAT Laboratories

GENERAL LITHOLOGICAL DESCRIPTIONS

Company : PARAMOUNT RESOURCES LTD.
Well : PARA et al LIARD
Location : a - 1
Formation :
Drilling Fluid : INVERT MUD

DATE: 05-04-1999
W/O Number : RC8208
Cored Interval : 1333.00-1351.40m
Recovery : 18.40m

GENERAL LITHOLOGICAL DESCRIPTIONS

CORE	DEPTH INTERVAL	CORE ANALYSIS	LITHOLOGY	REMARKS
1	1333.00-1333.73	NA	Shale/ Sandstone	Black shale; hard; fissile; scattered fish skeletal debris; locally interlaminated to thinly interbedded with light grey sandstone; very fine grained; subangular to subrounded; moderately sorted; framework consists of quartz, white to black chert/lithic grains, scattered carbonaceous grains, trace to minor glauconite grains, trace micropyrite; beige clay matrix; common ripple marks; wavy horizontal bedding. **Tight.**
1	1333.73-1334.38	SP001P 001-003	Sandstone	Light grey; hard; very fine grained; subangular to subrounded; moderately sorted; framework consists of quartz, white to black chert/lithic grains, scattered carbonaceous and glauconite grains; beige clay matrix; local calcite, dolomite and siderite cement; occasional sideritic peloids; horizontal bedding; sharp basal contact. **Poor to fair intergranular porosity.**
1	1334.38-1335.35	NA	Shale/ Sandstone	Black shale; hard; fissile; scattered fish skeletal debris and conodonts; locally silty/sandy; trace to minor glauconite grains; locally interlaminated to thinly interbedded with light grey sandstone; hard; very fine grained; subangular to subrounded; moderately sorted; framework consists of quartz, white to black chert/lithic grains, trace glauconite grains; beige clay matrix; common ripple marks; rare soft sediment deformation; toward the base grading to dark grey siltstone; wavy horizontal bedding; sharp basal contact. **Tight.**
1	1335.35-1335.57	SP002P 004	Sandstone	Light grey; hard; very fine grained; subangular to subrounded; moderately sorted; framework consists of quartz, white to black chert/lithic grains, trace glauconite and carbonaceous grains; beige clay matrix; local calcite, dolomite and siderite cement; trace micropyrite; local ripple marks; sharp basal contact. **Poor intergranular porosity.**

AGAT Laboratories

Company : PARAMOUNT RESOURCES LTD.
Well : PARA et al LIARD
Location : a - 1
Formation :
Drilling Fluid : INVERT MUD

DATE: 05-04-1999
W/O Number : RC8208
Cored Interval : 1333.00-1351.40m
Recovery : 18.40m

GENERAL LITHOLOGICAL DESCRIPTIONS

CORE	DEPTH INTERVAL	CORE ANALYSIS	LITHOLOGY	REMARKS
1	1335.57-1336.95	NA	Shale/ Sandstone	Black shale; hard; fissile; scattered fish skeletal debris and conodonts; locally interlaminated to interbedded with light grey sandstone; hard; very fine to fine grained; subangular to subrounded; moderately sorted; framework consists of quartz, white to black chert/lithic grains; beige clay matrix; local calcite cement; common ripple marks; horizontal bedding. **Tight.**
1	1336.95-1337.05	SP003P	Sandstone/ Shale	Light grey sandstone; hard; very fine grained; subangular to subrounded; moderately sorted; framework consists of quartz, white to black chert/lithic grains, trace to minor carbonaceous grains, trace glauconite grains; beige clay matrix; local calcite and dolomite cement; trace micropyrite; common ripple marks; locally interlaminated to interbedded with black shale. **Poor intergranular porosity.**
1	1337.05-1351.40	NA	Shale/ Sandstone	Black shale; hard; fissile; scattered fish skeletal debris and conodonts; rare pelecypod shell fragments; in the interval from 1343.50 to 1343.54m and from 1345.68m to 1345.75m siderite bed; trace micropyrite; 1cm thick pelecypod sandy coquina bed at 1346 .64m; common thin very fine grained sandstone/siltstone laminae/lenses. **Tight.**

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COMMON ABBREVIATIONS (CONTINUED)

sc	Scales
scat	Scattered
sd	Sand (1/16 - 2mm)
sdy	Sandy
sec	Secondary
sed	Sediment (ary)
sft	Soft
sh	Shale
shad	Shadow
shy	Shaly
sid	Siderite (ic)
sil	Silica
sks	Slickensided
sl	Slight (ly)
sln	Solution
slt	Silt
sltst	Siltstone
slty	Silty
sm	Smooth
SP	Small Plug (as prefix)
sp	Spot (ted) (ty)
spec	Speck (led)
spl	Sample
srt	Sort (ed) (ing)
strg	Stringer
Strom	Stromatoporoid
stromlt	Stromatolite
struc	Structure
styl	Stylolite (ic)
suc	Sucrosic
sug	Sugary
sup	Supported
surf	Surface
sz	Size

tab	Tabular
tex	Texture
Tham	Thamnopora
thk	Thick
thn	Thin
thru	Throughout
tr	Trace
trnsl	Translucent
trnsp	Transparent
tt	Tight
tub	Tubular
uncons	Unconsolidated
unident	Unidentifiable
up	Upper
v	Very
var	Variable
vcol	Varicolored
vfrac	Vertical Fracture
vgt	Varigated
vn	Vein
vrtl	Vertical
vug	Vug (gy) (ular)
w	Well
wh	White
wk	Weak
wthrd	Weathered
wtr	Water
wvy	Wavy
wxy	Waxy
wsrt	Well sorted

xbd	Cross-bedded
xbdg	Cross-bedding
xl	Crystal (line)
xlam	Cross-laminated
yel	Yellow
zn	Zone
*	Broken core
/	With
>10000	Permeability over 10000 mD
<0.01	Permeability less than 0.01 mD
CC	Cracked Core
DR	Drilled
LC	Lost Core
RU	Rubble
mD	milliDarcy

AGAT Laboratories

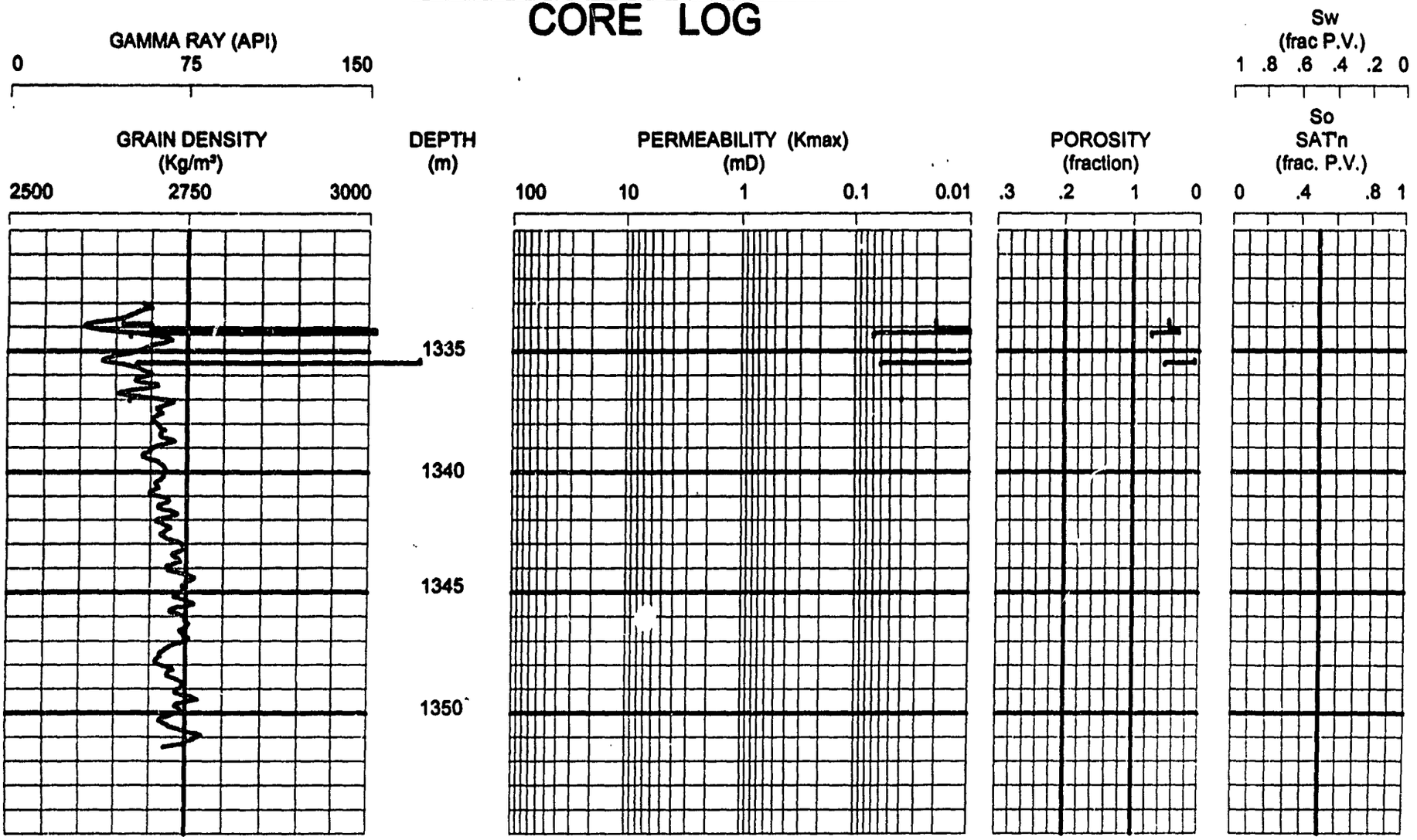
CORE LOG

Company : PARAMOUNT RESOURCES LTD
Well Name : PARA et al LIARD
Field :
Location : a - 1
Formation :
W / O : RC8208
Plot Scale 1:240

Recovery : 18.40m
Cored Interval : 1333.00 - 1351.40m
Drlg. Fld. : INVERT MUD
Elevation (KB) :

AGAT® Laboratories

CORE LOG

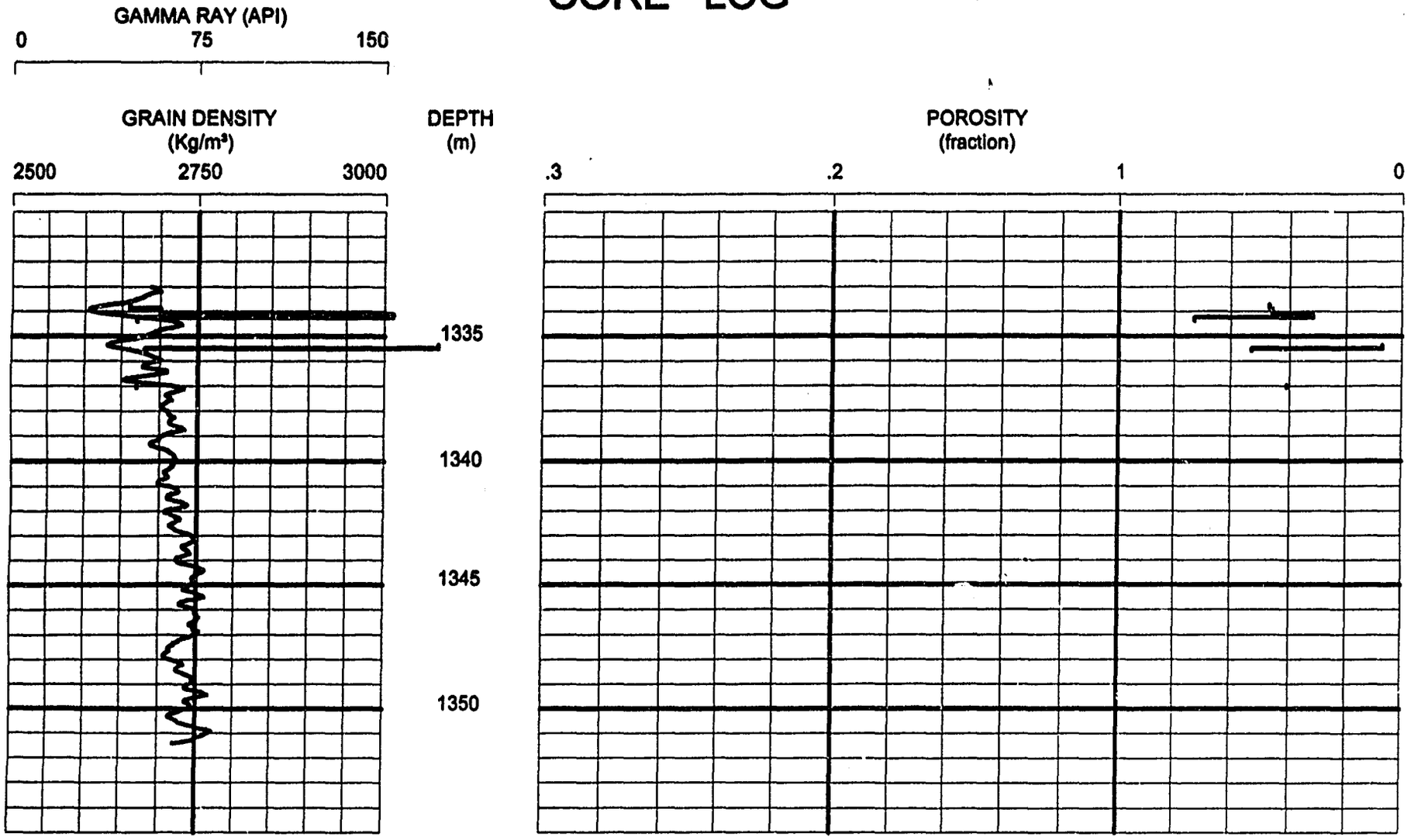


Company : PARAMOUNT RESOURCES LTD
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W / O : RC8208
Plot Scale 1:240

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Cored Interval : 1333.00 - 1351.40m
Drlg. Fld. : INVERT MUD
Elevation (KB) :

AGAT Laboratories

CORE LOG



AGAT Laboratories

12-[illegible] Paul

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB 10H

LABORATORY NUMBER: WF37051H

OPERATOR NAME: PARAMOUNT RESOURCES LTD.

UNIQUE WELL IDENTIFIER:

WELL NAME: PARAMOUNT et al LIARD a-01

ELEVATIONS KB m: 522.6[illegible] GRD m: 517.15

FIELD OR AREA: LIARD

POOL OR ZONE: TIGHT HOLE

NAME OF SAMPLER:

COMPANY: BAKER

TEST TYPE: DST

NO: 6

TEST RECOVERY: 60 DEG. 00' 05"latitude 123 DEG. 15' 05"longitude

SAMPLING POINT: TOP OF TOOL

AMT & TYPE OF CUSHION:

MUD RESISTIVITY Ω m @ 25° C:

TEST INTERVAL OR PERFS: 1668.00-1698.00 mKB

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER m³/d | OIL m³/d | GAS 10³ m³/d

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE ° C						

DATE SAMPLED (Y-M-D): 99-03-15

DATE RECEIVED (Y-M-D): 99-03-19

DATE REPORTED (Y-M-D): 99-03-31

ANALYST: LN NCO

OTHER INFORMATION: SAMPLE #6-F

ION	mg/L	MASS FRACTION	mmol/L
Na	13300.0	0.322	580.0
K	182.0	0.004	4.7
Ca	1460.0	0.035	36.4
Mg	370.0	0.009	15.2
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	0.2	TRC*	TRC+

ION	mg/L	MASS FRACTION	mmol/L
Cl	25100.0	0.608	707.0
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO_3	869.0	0.021	14.2
SO_4	1.9	TRC*	TRC+
CO_3	NIL	NIL	NIL
OH	NIL	NIL	NIL
H_2S	N.D.	N.D.	N.D.

DISSOLVED TOTAL SOLIDS mg/L

EVAPORATED AT 110° C:

EVAPORATED AT 180° C:

AT IGNITION:

CALCULATED: 41300.0

RELATIVE DENSITY: 1.032 @ 25° C

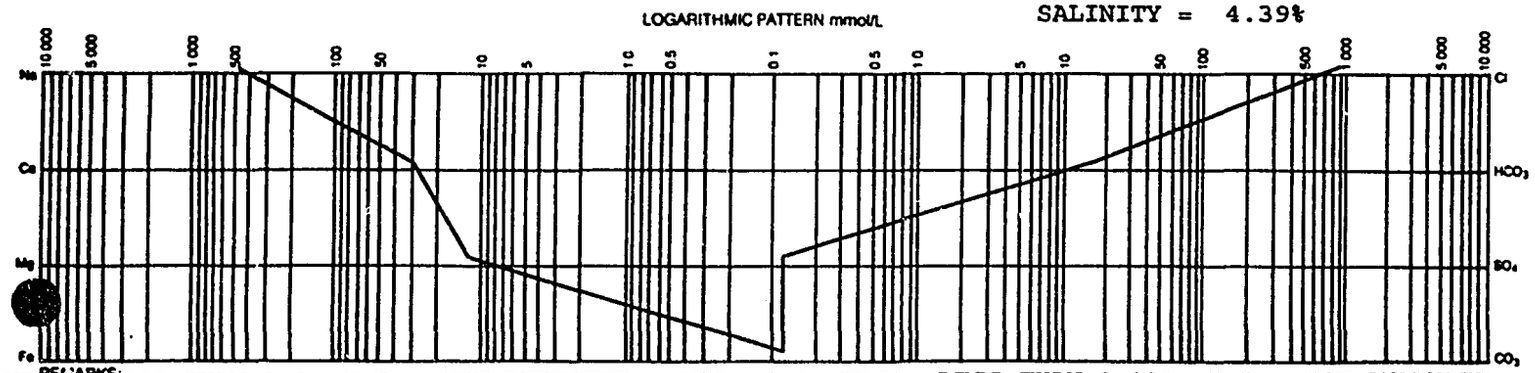
REFRACTIVE INDEX: N.A. @ 25° C

OBSERVED pH: 7.15 @ 25° C

RESISTIVITY/OHM·m: 0.17 @ 25° C

LOGARITHMIC PATTERN mmol/L

SALINITY = 4.39%



REMARKS:

TRC+= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

AGAT® Laboratories

GAS ANALYSIS

CONTAINER IDENTIFICATION: AGAT 20366

LABORATORY NUMBER: GF37051A

OPERATOR NAME: PARAMOUNT RESOURCES LTD.

UNIQUE WELL IDENTIFIER:

WELL NAME: PARAMOUNT et al LIARD A-01

ELEVATIONS KB m: 522.65 GRD m: 517.15

FIELD OR AREA: LIARD

POOL OR ZONE: TIGHT HOLE

NAME OF SAMPLER:

COMPANY: BAKER

TEST TYPE: DST NO: 6

TEST RECOVERY: 60 DEG. 00' 05"latitude 123 DEG. 15' 05"longitude

TEST INTERVAL OR PERFS: 1668.0-1698.0 mKB

SAMPLING POINT: BOTTOM HOLE SAMPLER

	SEPARATOR	TREATER	REBERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa				310	310	75
TEMPERATURE °C						21

DATE SAMPLED (Y-M-D): 99-03-15

DATE RECEIVED (Y-M-D): 99-03-19

DATE REPORTED (Y-M-D): 99-04-06

ANALYST: PL NCO

OTHER INFORMATION: BHS #275

COMP	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	PETROLEUM LIQUID CONTENT mL • m³
H_2	0.0003	0.0003	
He	0.0001	0.0001	
N_2	0.1282	0.1318	
CO_2	0.0276	0.0000	
H_2S	0.0000	0.0000	
C_1	0.8312	0.8549	
C_2	0.0078	0.0080	
C_3	0.0021	0.0022	7.8
IC_4	0.0006	0.0006	2.6
NC_4	0.0005	0.0005	2.1
IC_5	0.0001	0.0001	0.5
NC_5	0.0001	0.0001	0.5
C_6	0.0012	0.0012	6.4
C_7	0.0002	0.0002	1.4
C_8	TRACE	TRACE	0.2
C_9	0.0000	0.0000	0.0
C_{10+}	0.0000	0.0000	0.0
TOTAL	1.0000	1.0000	21.5

GROSS HEATING VALUE MJm³ 15° C AND 101.325 kPa

MOISTURE AND ACID GAS FREE: 33.46

AIR FREE AS RECEIVED: 32.54

VAPOUR PRESSURE PENTANES PLUS: 42.1 kPa

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED		MOISTURE AND ACID GAS FREE	
MEASURED	CALCULATED	MEASURED	CALCULATED
	0.645		0.620

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED		ACID GAS FREE	
pPc (abs)	pTc	pPc (abs)	pTc
4523 kPa	187.4 K	4442 kPa	184.1 K

RELATIVE MOLECULAR MASS

TOTAL GAS: 18.7

C_{7+}: 101.8

H_2S gm³: 0.00

REMARKS:

EXCEED NORMAL LIMITS : N2

AGAT® Laboratories

GAS ANALYSIS

CONTAINER IDENTIFICATION: AGAT 18796

LABORATORY NUMBER: GF37051C

OPERATOR NAME: PARAMOUNT RESOURCES LTD.

UNIQUE WELL IDENTIFIER:

WELL NAME: PARAMOUNT et al LIARD A-01

ELEVATIONS KB m: 522.65 GRD m: 517.15

FIELD OR AREA: LIARD

POOL OR ZONE: TIGHT HOLE

NAME OF SAMPLER:

COMPANY: BAKER

TEST TYPE: DST NO: 6

TEST RECOVERY: 60 DEG. 00' 05"latitude 123 DEG. 15' 05"longitude

TEST INTERVAL OR PERFS: 1668.0-1698.0 mKB

SAMPLING POINT: VALVE OPEN

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						1
TEMPERATURE °C						21

DATE SAMPLED (Y-M-D): 99-03-15

DATE RECEIVED (Y-M-D): 99-03-19

DATE REPORTED (Y-M-D): 99-04-06

ANALYST: PL NCO

OTHER INFORMATION: 60min INTO V.O.

COMP	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	PETROLEUM LIQUID CONTENT mL • m³
H_2	TRACE	TRACE	
He	0.0001	0.0001	
N_2	0.0044	0.0044	
CO_2	0.0006	0.0000	
H_2S	0.0000	0.0000	
C_1	0.9868	0.9874	
C_2	0.0056	0.0056	
C_3	0.0008	0.0008	2.9
IC_4	0.0001	0.0001	0.5
NC_4	0.0002	0.0002	0.8
IC_5	0.0001	0.0001	0.6
NC_5	0.0002	0.0002	0.9
C_6	0.0004	0.0004	2.0
C_7 +	0.0007	0.0007	4.7
C_8			
C_9			
C_{10} +			
TOTAL	1.0000	1.0000	12.4

GROSS HEATING VALUE MJm³ 15° C AND 101.325 kPa

MOISTURE AND ACID GAS FREE: 38.06

AIR FREE AS RECEIVED: 38.03

VAPOUR PRESSURE PENTANES PLUS: 40.4 kPa

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED		MOISTURE AND ACID GAS FREE	
MEASURED	CALCULATED	MEASURED	CALCULATED
	0.564		0.563

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED		ACID GAS FREE	
pPc (abs)	pTc	pPc (abs)	pTc
4599 kPa	191.6 K	4597 kPa	191.6 K

RELATIVE MOLECULAR MASS

TOTAL GAS	C_7 +
16.3	103.7

H_2S g/m³: 0.00

REMARKS

[redacted] - 21st STREET N.E.
[redacted]GARY, ALBERTA
CANADA T2E 6V6

AGAT® Laboratories

TEL: (403) 299-2000
FAX: (403) 299-2010
www.agatlabs.com

Certificate of Analysis

CLIENT NAME: PARAMOUNT RESOURCES LTD.

AGAT WORK ORDER 99F37051

ATTENTION: Paul Collens

Trace Sulphur Analysis (GC/SCD) - Gas

SAMPLE TYPE: GAS
SAMPLE ID: 18796C
SAMPLE DESCRIPTION: Paramount et al Liard A-01 collected 60min. into V.O. Lat.60o00'05" Long.123o15'05" Interval:1668.0-1698.0 Formation:TIGHT HOLE

DATE SAMPLED: Mar 15, 1999
DATE RECEIVED: Mar 19, 1999
DATE REPORTED: Mar 30, 1999

PARAMETER	RESULTS	UNITS	M.D.L.	DATE ANALYZED	INITIALS	DATE PREPARED
Hydrogen Sulphide	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Carbonyl Sulphide	0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Methyl Mercaptan	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Ethyl Mercaptan	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Methyl Sulphide	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Carbon Disulphide	0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
2-Propyl Mercaptan	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
[redacted]tyl Mercaptan	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
[redacted]opyl Mercaptan	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Ethyl Methyl Sulphide	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
s-Butyl Mercaptan	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Thiophene	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
i-Butyl Mercaptan	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Ethyl Sulphide	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
n-Butyl Mercaptan	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
t-Butyl Methyl Sulphide	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Methyl Disulphide	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Ethyl Disulphide	<0.1	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999
Total Organic Sulphur	0.3	ppm (v/v)	0.1	Mar 30, 1999	TG	Mar 30, 1999

COMMENTS:

M.D.L. - Method Detection Limit
Identification based on retention time relative to standards.
All compounds quantified as ideal gases. Hydrogen sulphide quantified using it's standard response factor, all other compounds quantified using carbonyl sulphide's response factor.
Total organic sulphur includes compounds with chromatographic retention up to and including that of ethyl disulphide.
Results are for sample as received; teflon lined cylinders are recommended due to the reactive nature of the analytes.

Certified By: E. Wadden

Accredited by the Standards Council of Canada, in cooperation with Canadian Association for Environmental Analytical Laboratories (SCC/CAEAL)
Accredited by the American Industrial Hygiene Association (AIHA)

PARAMOUNT RESOURCES LTD.

BIT RECORD

WELL NAME PARA ET AT LIARD LOCATION A-01 60 00' 4.641" - 123 15' 4.862"

Contractor PRECISION Rig No. 373 Field LIARD

Spud Date 1902 09 @ 05:30 Hrs. T.D. Date Rig Release Date

Bit No.	Size mm	Make & Type	Depth Out	Metres Drld.	Rotating Hours	Total Hours	Weight on Bit - daN	Bit RPM	Jets -- mm 1	2	3	Pump Pr. kPa or MPa	Pump Out m3/min	Dull Condition T	B	G
1Art	311	St FDSS+	281	281	10.25	10.25	6-8000	180	3/15.9			6500	2.22	6	4	I
2A	311	V.L-127XG	501	220	32.50	42.75	5-8000	180	3/15.9			6700	2.22	5	4	I
1Brt	445	S21GT	295	295	19.75	62.50	6-10000	140	3/19.1			12500	3	3	5	I
2Brt	445	X33	503	208	32.50	95.00	6-12000	140	3/19.1			12500	3	4	4	I
1	222	V.ETD437-J	1118	615	61.00	156.00	6-14000	65/120	3/12.7			6200	1.4	4	4	I
2	222	V.ETD527-J	1333	215	34.00	190.00	10-12000	65/120	3/12.7			6200	1.4	2	2	I
1-C	156	ARC-325	1351	18	2.00	192.00	3-4000	60				4400	0.666	Good		
3rr2	222	V.ETD527-J	1450	99	20.00	212.00	8-10000	70/120	3/12.7			6500	1.4	4	4	I
4	222	RBIC3LRG	1654	204	50.25	262.25	10-16000	60/120	3/12.7			6300	1.4	Lost2Cones		
5	222	RBIC45LRC	1654			CLEAN OUT -REAM UNDERGAUGE HOLE										
6rr5	222	RBIC45LRC	1654				MILL							5	4	I
7	222	HC.HR-40-(	1698	42	14.50	276.75	8-12000	100/135	3/11.9			8200	1.4	6	4	I
8	222	S.GM89FD	1783	87	40.50	317.25	8-12000	100/135	3/11.9			9200	1.4	4	4	I

Remarks

PARAMOUNT RESOURCES LTD.

BIT RECORD

WELL NAME PARA ET AT LIARD LOCATION A-01 60 00' 4.641" - 123 15' 4.862"

Contractor PRECISION Rig No. 373 Field LIARD

Spud Date 99 02 09 @ 05:30 Hrs. T.D. Date 99 03 19 Rig Release Date 99 03 24

Bit No.	Size mm	Make & Type	Depth Out	Metres Drld.	Rotating Hours	Total Hours	Weight on Bit - daN	Bit RPM	Jets -- mm 1	2	3	Pump Pr. kPa or MPa	Pump Out m3/min	Dull Condition T	B	G
9	222	S. GM89F	1789	6	4.50	321.75	8-12000	100	3/11.9			9700	1.4	1	2	I
10rr9	222	S.GM89F	1851	62	62.00	383.75	8-12000	100/145	3/11.9			10000	1.4	5	4	I
11	222	Rd. HP64	1917	66	32.00	415.75	8-12000	100/145	3/11.9			10000	1.4	6	4	I
12rr1	222	V.ETD437	1917			Clean Out										
13	222	ST. F57OD	1935	18	11.50	427.25	10-14000	60/90	3/12.7			8500	1.4	2	2	I
14rr	222	V.ETD437	1935			Clean Out										
15r1	222	ST. F57OD	2046	111	69.00	496.25	2-180000	50/80	3/12.7			8500	1.4	6	4	2
16rr	222	V. ETD437	2046			Clean Out										

Remarks BIT # 9 -TRIPPED FOR MOTOR FAILURE.

BIT # 11 - TRIP FOR DST.

PARAMOUNT ENGINEERING

FOR 24 HR PERIOD ENDING 99 03 23 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01.60 00' 4.641"-123 15' 4.862"

Day 46 Depth 2046 Metres last 24 hr _____ Rotating hrs _____

Activity at report time TEAR OUT BOP's.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 960 Vis 48 WL 5 Gels 1 Solids 4 % PV 12 YP 4.8 pH

Oil 92 % Sand 0.001 % Cake 1 PPMCL 325000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service	0.25	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2.75	
8. Rig Repair		
9. Run Casing & Cement	13.25	
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nippl Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP	4.00	
19. Plug & Abandon		
20. Rig up - Tear out	3.50	
21. Safety Meetings	0.25	
TOTAL	24.00	

COSTS

DAILY	$135,605
CUMMULATIVE	$2,348,170

SUPERVISOR D.McCULLOCH

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 23 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: LAY DOWN DRILL PIPE AND DRILL COLLARS.
RIG UP AND RUN CASING.
CIRCULATE AND CONFDITION HOLE.
RIG UP NOWSCO AND CEMENT.
RIG OUT BOP's AND TRANSFER INVERT TO TANK FARM.

(RAN 155 JOINTS 177.8mm, 34.26kg/m, L-80, LT&C, ERW 8rd CASING.
LANDED @ 2046m. PREFLUSH 3m3 DIESEL + 3m3 NOWSCOFLUSH.
SCAVANGER - 10t 1:1:2 + 0.5% T-10
FILL - 17t 1:1:2 +0.5% T-10
TAIL - 15t 0:1:0 "G" + 0.8% NFL-2 + 1% A-11
DISPLACED WITH 41.88m3 H2O.
3m3 SCAVANGER RETURNS. PLUG DOWN @ 20:12 Hrs. 99 03 23)

WANT LIST:

WEATHER: CLEAR -1C ROAD: FAIR.

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99.03.22 24:00
YY - MMM - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 45 Depth 2046 Metres last 24 hr _____ Rotating hrs _____

Activity at report time LAY DOWN 114mm DRILL PIPE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 980 Vis 48 WL 5 Gels 1 Solids 4 % PV 12 YP 4.8 pH

Oil 92 % Sand 0.001 % Cake 1 PPMCL 325000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	JET WT	JET RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
16rr2	222	V. EDT 437	140335			CLEAN OUT								

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
16rr2	12.7	12.7	12.7	203	130	152	1.44					8000

DEVIATION SURVEYS

• at	m	• at	m
• at	m	• at	m
• at	m	• at	m
• at	m	• at	m

MUD & CHEMICALS ADDED

FLOOR DRY-1
CALCIUM CARBONATE-20

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.25	
1-BIT SUB	161		0.98	
8-DRILL COLLARS	165		78.44	
204- DRILL PIPE	114		1,953.50	

COSTS

DAILY	$63,734
CUMMULATIVE	$2,210,585

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	11.50	
3. Rig Service	0.50	
4. Deviation Surveys	0.50	
5. Measr & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2.00	
8. Rig Repair (Rig & Cas)	0.50	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	7.25	
14. Waiting on:		
15. Nipple Up & Test BOPs		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP	1.75	
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 22 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: MAKE UP TEST TOOL.
RUN IN HOLE WITH DST # 9.
SLIP AND CUT DRILLING LINE.
FINISH RUNNING IN HOLE.
PUMP UP PACKERS AND PERFORM DST # 9.
TRIP OUT OF HOLE.
RECOVER AND READ RECORDERS.
SERVICE TOOLS AND LAY DOWN SAME.
MAKE UP BHA AND RUN IN HOLE FOR CLEAN OUT.
CIRCULATE HOLE CLEAN.
SURVEY.
LAY DOWN DRILL PIPE.

WANT LIST:

WEATHER: CLEAR -1C ROAD: FAIR.

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 21 24:00
Yr - Mth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 44 Depth 2048 Metres last 24 hr _____ Rotating hrs _____

Activity at report time CHANGE OUT BOTTOM PACKER.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 975 Vis 48 WL 5 Gels 1 Solids 4 % PV 12 YP 4.8 pH _____
Oil 92 % Sand 0.001 % Cake 1 PPMCL 325000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP - STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
				209		152						

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
TEST TOOL	222		15.47	
8-DRILL COLLARS	165		76.44	
195- DRILL PIPE	114		1,897.10	

COSTS

DAILY	$30,435
CUMMULATIVE	$2,146,831

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	11.25	
3. Rig Service	0.25	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	12.50	
14. Waiting on: Orders		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP		
19. Rig Up & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 21 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: PERFORM DST # 7.
DEFLATE , PULL FREE AND TRIP OUT OF HOLE.
RECOVER RECORDERS. SERVICE TOOLS.
MAKE UP DST # 8 AND RUN IN HOLE.
PUMP UP PACKERS. NO SEAT. TRY TO REPUMP UP PACKERS.
TRIP OUT OF HOLE.
CHANGE OUT BOTTOM PACKER AND PUMP.

WANT LIST:

WEATHER: OVERCAST - 0 C ROAD: FAIR.

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 20 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 43 Depth 2048 Metres last 24 hr _____ Rotating hrs _____

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 975 Vis 48 WL 5 Gels 1 Solids 4 % PV 12 YP 4.8 pH

Oil 92 % Sand 0.001 % Cake 1 PM/MCL 326000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	WT	RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
15rr13	222	SL F57OD	LT5838		50/80	2048	30	111	18.50	69.00	1.60			
								129		80.50	1.59	8	E	2

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP PRESS	SPM	LINER	L/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
15rr13	12.7	12.7	12.7	203	130	152	1.44	11	88			7300

DEVIATION SURVEYS

3	°	at	2039 m	°	at		m
	°	at	m	°	at		m
	°	at	m	°	at		m
	°	at	m	°	at		m

MUD & CHEMICALS ADDED

INVERT- 2m3

CALCUIM CARBONATE-20

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
TEST TOOL	222		16.58	
8-DRILL COLLARS	165		76.44	
204- DRILL PIPE	114		1,953.53	

COSTS

DAILY	$90,031
CUMMULATIVE	$2,116,398

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	7.00	
3. Rig Service	0.75	
4. Deviation Surveys	0.50	
5. Reams & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	1.25	
8. Rig Repair	0.50	
9. Run Casing & Cement		
10. Fishing		
11. Logging	7.50	
12. Coring		
13. Formation Testing	5.50	
14. Waiting on: Orders		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP	1.00	
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 20 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: CIRCULATE AND CONDITION HOLE.
SURVEY.
STRAP OUT TO LOG.
RIG UP AND LOG WITH BAKER ATLAS. (#1- HDIL-GR, #2 - CN-ZDL-GR-XY, #3- XMAC-GR)
RIG OUT LOGGERS.
LAY DOWN DRILL COLLARS.
PICK UP BAKER TEST TOOLS AND RUN IN HOLE BOTTOM HOLE INFLATE.
PERFORM DST # 7.

HAULED IN ONE LOAD OF CEMENT.
HAUL IN LOAD OF SAWDUST AND TRANSFER 25000 kg OF DRILLED CUTTING TO RUDIGER ENTERPRIZE VIA COMPASS TRANSFER IN FT ST JOHN.

WANT LIST:

WEATHER: CLEAR -3C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D~2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 19 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 42 Depth 2048 Metres last 24 hr 30 Rotating hrs 18.5

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 975 Vis 48 WL 5 Gels 1 Solids 4 % PV 12 YP 4.8 pH
Oil 92 % Sand 0.001 % Cake 1 FPMCL 325000 FPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
15rr13	222	SL F57OD	LT5838	/2/1/	50/80	2048	30	111	18.50	80.00	1.80			
								129		80.50	1.59			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
15rr13	12.7	12.7	12.7	203	130	152	1.44	11	88			7900

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

INVERT- 3m3
SOLUFLAKE-12

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.25	
1-BIT SUB	161		0.98	
16-DRILL COLLARS	165		153.19	
197- DRILL PIPE	114		1,884.10	
1-KELLY			7.40	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	18.50	
2. Trips	1.75	
3. Rig Service	0.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	3.00	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on Orders		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$39,405
CUMMULATIVE	$2,026,365

SUPERVISOR D.McCULLOCH

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 19 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.841"-123 15' 4.862"

OPERATIONS DETAIL: DRILL 222mm HOLE.
CIRCULATE UP SAMPLE.
DRILL 222mm HOLE.
CIRCULATE UP SAMPLE.
WIPER TRIP.
CIRCULATE AND CONDITION HOLE.

FLOW LINE TEMPERTURE - 30 C @ 21:00 Hrs.
CENTRIFUGES - 2 Hrs. INTAKE DENSITY - 980 kg/m.
OVERFLOW DENSITY-940 kg/m.
UNDERFLOW DENSITY- 1570 kg/m.

BAKER ATLAS ON LOCATION.
BAKER TESTER ON LOCATION.
JACK AND LEVEL RIG WITH CAM'S RIG JACKING SERVICE.
HAULED IN ONE LOAD OF CEMENT.

WANT LIST:

WEATHER: CLEAR -3C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

MAR-20-1999 03:19 PM P.02

PARAMOUNT RESOURCES LTD

FOR 24 HR PERIOD ENDING 99 03 18 24:00
Yr - Mnth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 41 Depth 2016 Metres last 24 hr 34 Rotating hrs 19.25

Activity at report time: DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 970 Vis 50 WL 5 Gels 1 Solids 4 % FV 12 YP 4.8 pH

Oil 92 % Sand 0.001 % Calc 1 PPMCL 325000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Drill Cond. T	B	G
15rr13	222	SL F57OD	LT5838	10/15	50/80		34	81	19.25	50.50	1.80			
								99		62.00	1.59			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
15rr13	12.7	12.7	12.7	203	130	152	1.44	11	88			7300

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

INVERT- 4m3 SAWDUST-2
SOLUFLAKE-13
CARBOMUL-1
CALCUIM CARBONATE-17

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.76	
1-BIT SUB	161		0.98	
16-DRILL COLLARS	165		153.19	
194- DRILL PIPE	114		1,855.13	
1-KELLY			6.45	

TIME ANALYSES

OPERATION	TODAY	CUM.
1. Drilling	19.25	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	1.25	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on: Orders	2.75	
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$27,803
CUMMULATIVE	$1,986,980

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 18 24:00
Yr - Mth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL 222mm HOLE.
CIRCULATE UP SAMPLE.
WAIT ON ORDERS.
DRILL 222mm HOLE.

FLOW LINE TEMPERTURE - 30 C @ 21:00 Hrs.
CENTRIFUGES - 3 Hrs. INTAKE DENSITY - 980 kg/m.
OVERFLOW DENSITY-945 kg/m.
UNDERFLOW DENSITY- 1900 kg/m.

BAKER ATLAS ON LOCATION.
HAULED IN 177.8 mm CASING VIA PE-BEN FT ST JOHN.

WANT LIST:

WEATHER: OVERCAST -3 C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 17 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.882"

Day 40 Depth 1982 Metres last 24 hr 40 Rotating hrs 23.25

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 975 Vis 53 WL 5.5 Gels 1 Solids 4 % PV 12 YP 4.8 pH

Oil 90 % Sand 0.001 % Cake 1 PPMCL 216686 PPMCa 2E+06

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
15rr13	222	SL F57OD	LT5838	10/14	50/80		40	47	23.25	31.25	1.50			
								85		42.75	1.52			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	RPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
15rr13	12.7	12.7	12.7	203	130	152	1.44	11	88			7300

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

INVERT- 5rr13
SOLUFLAKE-9

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.25	
1-BIT SUB	161		0.98	
16-DRILL COLLARS	165		153.19	
190- DRILL PIPE	114		1,816.41	
1-KELLY			11.17	

COSTS

DAILY	$27,716
CUMMULATIVE	$1,959,157

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	23.25	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 17 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL 222mm HOLE.

FLOW LINE TEMPERTURE - 19 C @ 21:00 Hrs.
CENTRIFUGES -3.5 Hrs. INTAKE DENSITY - 985 kg/m.
OVERFLOW DENSITY-940 kg/m.
UNDERFLOW DENSITY- 1910 kg/m.

WANT LIST:

WEATHER: CLEAR -5C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D~2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 16 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 39 Depth 1942 Metres last 24 hr 7 Rotating hrs 8

Activity at report time: DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 975 Vis 53 WL 6.5 Gels 1.5 Solids 4 % PV 12 YP 4.8 pH

Oil 90 % Sand 0.001 % Cake 1 PPMCL 240000 PPMCa 100000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	JET WT	JET RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
15m13	222	St. F57OD	LT5636	18/15	80		7		8.00		0.88			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
15m13	12.7	12.7	12.7	203	130	152	1.44	11	88			7500

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

CARBOMUL-1
CALCUIM CHLORIDE-1
SOLUFLAKE-8

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.25	
1-BIT SUB	161		0.98	
16-DRILL COLLARS	165		153.19	
186- DRILL PIPE	114		1,778.07	
1-KELLY			9.51	

COSTS

DAILY	$80,977
CUMMULATIVE	$1,931,441

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	8.00	
2. Trips	6.50	
3. Rig Service	0.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Circ & Cond. Mud		
7. Circulation	1.25	
8. Rig Repair)		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	7.75	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

PARA-D~1.XLS

MAR-17-1999 03:28 PM

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 16 24:00
Yr - Mnth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: PERFORM DST # 6
TRIP OUT OF HOLE WITH TEST TOOLS. MECHANICALLY SOUND TEST.
SERVICE TOOLS.
LOAD OUT TEST TOOLS.
MAKE UP BHA AND STRAP INTO HOLE.
CLEAN TO BOTTOM AND DRILL 222mm HOLE.

FLOW LINE TEMPERTURE - 19 C @ 21:00 Hrs.
CENTRIFUGES - 2Hrs. INTAKE DENSITY - 975 kg/m.
OVERFLOW DENSITY- 940 kg/m.
UNDERFLOW DENSITY- 1870 kg/m.

LAY DOWN FLARE STACK. LOAD OUT 88.9mm PIPE AND RUNNING EQUIPMENT.
LOAD OUT ALPINE RBOP CONTAINER AND RELATED EQUIPMENT AND SEND TO DEVON WITH HART HIGHWAY TRANSFER.
SEND FLARE STACK TO GRANDE PRAIRIE VIA HART HIGHWAY TRANSFER.
SEND PIPE TO WEATHERFORD IN FT.ST JOHN VIA HART HIGHWAY TRANSFER.

WANT LIST:

WEATHER: CLEAR -5C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D~2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 15 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 38 Depth 1934 Metres last 24 hr _____ Rotating hrs _____

Activity at report time DST # 6 WITH BAKER HUGHES

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 965 Vis 50 WL 6 Gels 2 Solids 3 % PV 12 YP 5.3 pH

Oil 92 % Sand 0.001 % Cake 1 PPMCL 240000 PPMCa 128000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	WT	RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
				203		152						

DEVIATION SURVEYS

° at m	° at m
° at m	° at m
° at m	° at m
° at m	° at m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-TEST TOOL			28.00	
1-BIT SUB	161		0.98	
10-DRILL COLLARS	165		95.63	
163- DRILL PIPE	114		1,559.28	
1-STABBING VALVE			0.50	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	11.75	
3. Rig Service	0.50	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	1.75	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	9.75	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

COSTS

DAILY	$34,610
CUMMULATIVE	$1,850,464

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 15 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: PERFORM DST # 5
TRIP OUT OF HOLE WITH TEST TOOLS. MECHANICALLY SOUND TEST.
SERVICE TOOLS.
LAY DOWN TOOLS AND RUN IN HOLE FOR A CLEAN OUT.
CIRCULATE HOLE CLEAN. TRIP OUT OF HOLE.
MAKE UP TEST TOOL AND RUN IN HOLE.
PERFORM DST # 6.

SEND WELLSITE UNIT # 5221 OF C&V PORTABLE ACCOMMODATIONS TO
VALLEYVIEW VIA STAN DEAN & SONS TRUCKING.
SEND DIRECIONAL TOOLS, MWD, CORE BARRELS, MAGNUM JARS TO
BASE CAMP VIA NORANCO TRANSPORT.

WANT LIST:

WEATHER: CLEAR -4C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

MAR-16-1999 01:57 PM

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 14 24:00
Yr - Month - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 37 Depth 1934 Metres last 24 hr _____ Rotating hrs _____

Activity at report time: DST # 5 WITH BAKER HUGHES

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 965 Vis 50 WL 8 Gels 2 Solids 3 % PV 12 YP 5.3 pH

Oil 92 % Sand 0.001 % Cake 1 PPMCL 240000 PPMCa 128000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
				203		152						

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-TEST TOOL			15.50	
1-BIT SUB	161		0.98	
10-DRILL COLLARS	165		95.83	
175- DRILL PIPE	114		1,301.92	
1-STABBING VALVE			0.50	

COSTS

DAILY	$34,610
CUMMULATIVE	$1,815,854

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	5.00	
3. Rig Service	0.25	
4. Deviation Surveys		
5. Measu & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair)		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	18.75	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D~1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 14 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.841"-123 15' 4.862"

OPERATIONS DETAIL: PERFORM DST #4

TRIP OUT OF HOLE WITH TEST TOOLS. MECHANICALLY SOUND TEST.
SERVICE TOOLS.
RUN IN HOLE WITH DST# 5.
PERFORM DST # 5.

WANT LIST:

WEATHER: CLEAR -4C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 13 24:00
(Yr - Mon - Day - Time)

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 36 Depth 1934 Metres last 24 hr _____ Rotating hrs _____

Activity at report time: DST # 4 WITH BAKER HUGHES

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 985 Vis 50 WL 8 Gels 2 Solids 3 % PV 12 YP 5.3 pH ___

Oil 92 % Sand 0.001 % Cake 1 PPMCL 240000 PPMCa 128000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
				203		152						

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-TEST TOOL			15.50	
1-BIT SUB	101		0.98	
10-DRILL COLLARS	165		95.83	
175- DRILL PIPE	114		1,674.23	
1-STABBING VALVE			0.50	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	6.75	
3. Rig Service	0.25	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair (Rig & Csg)	0.75	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	16.25	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$60,903
CUMMULATIVE	$1,781,244

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

MAR-14-1999 03:18 PM

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 13 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: PERFORM DST # 3.
TRIP OUT OF HOLE WITH TEST TOOLS. MECHANICALLY SOUND TEST.
RECOVER AND REVERSE OUT 200m FLUID.
FINISH OUT OF HOLE. RECOVER RECORDERS, SAMPLERS AND SERVICE TOOL.
MAKE UP DST # 4.(CHANGE OUT BOTTOM PACKER RUBBER)
SLIP AND CUT DRILLING LINE.
TRIP INTO HOLE.
HEAD UP AND PERFORM DST # 4.

SEND ENTEST UNITS TO BASE CAMP.
SEND OUT CANADIAN AIR EQUIPMENT TO NISKU VIA BOREK CONSTRUCTION.
RELEASE DELTA-P TEST CORP.

WANT LIST:

WEATHER: CLEAR -6C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

MAR-14-1999 03:19 PM
P.02

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 12 24:00
Yr - Mth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 35 Depth 1934 Metres last 24 hr _____ Rotating hrs _____

Activity at report time: DST # 3 WITH BAKER HUGHES

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 985 Vis 50 WL 6 Gels 2 Solids 3 % PV 12 YP 5.3 pH _____
Oil 92 % Sand 0.001 % Cake 1 PPMCL 240000 PPMCa 128000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot Hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	C

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS kPa
				203		152						

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-TEST TOOL			22.10	
1-BIT SUB	161		0.93	
10-DRILL COLLARS	165		95.83	
179- DRILL PIPE	114		1,712.66	
1-STABBING VALVE			0.50	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	9.50	
3. Rig Service	0.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging	2.00	
12. Coring		
13. Formation Testing	11.50	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

COSTS

DAILY	$135,890
CUMMULATIVE	$1,720,341

SUPERVISOR D.McCULLOCH

PARA-D-1.X18

MAR-14-1999 03:19 PM

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 12 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: FINISH LOGGING WITH BAKER ATLAS.
PICK UP BAKER HUGHES TEST TOOLS.
RUN IN HOLE AND PERFORM DST#2.
LOST SEAT DURING PREFLOW SHUT IN.
TRIP OUT OF HOLE . RECOVER AND READ RECORDERS.
CHANGE OUT TOP AND BOTTOM PACKERS.
DUMP AND SAVE FLUID FROM 1 SAMPLER.
MAKE UP TOOLS AND RUN IN HOLE.
HEAD UP AND PREPARE FOR DST # 3.

HAUL IN AND SPOT ENTEST EQUIPMENT.

WANT LIST:

WEATHER: CLEAR -8C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

MAR-14-1999 03:20 PM

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 11 24:00
YY - Mon - Day - Hour

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 34 Depth 193- Metres last 24 hr 9 Rotating hrs 5.5

Activity at report time LOG WITH BAKER ATLAS

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 965 Vis 50 WL 6 Gels 2 Solids 3 % PV 12 YP 5.3 pH

Oil 92 % Sand 0.001 % Cake 1 PPMCL 240000 PPMCa 128000

BIT RECORD

BIT NO.	SIZE mm	MAKER & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
13	222	ST. F570D	LT5838	10-15	90	1935	9	18	5.50	11.50	1.58	2	E	I

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
13	12.7	12.7	12.7	203	130	152	1.44	11	32			6500

DEVIATION SURVEYS

° at m	° at m
° at m	° at m
° at m	° at m
° at m	° at m

MUD & CHEMICALS ADDED

CALCIUM CARBONATE-20
MILCLEAN-1

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-BIT SUB	161		0.98	
12-DRILL COLLARS	165		114.69	
180- DRILL PIPE	114		1,809.50	
1-KELLY			9.38	

COSTS

DAILY	$35,155
CUMMULATIVE	$1,584,451

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	5.50	
2. Trips	4.00	
3. Rig Service	0.50	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2.00	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging	11.75	
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

PARA-D~1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 98 03 11 24:00
Yr - Month - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL 222mm HOLE TO A TOTAL DEPTH OF 1935.
CIRCULATE UP SAMPLE.
WIPER TRIP.
CIRCULATE AND CONDITION HOLE.
STRAP OUT OF HOLE .
RIG UP BAKER ATLAS AND LOG WELL.(#1-HDIL/GR/Y-CAL)
(#2- 2DC/CN/GR/XY CAL)
(#3- X-MAC/CR)

SEND OUT DIRECTIONAL HANDS VIA ALTA FLIGHTS.

WANT LIST:

WEATHER: CLEAR -9C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 10 24:00
Yr - Mon - Day Hour

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.882"

Day 33 Depth 1926 Metres last 24 hr 9 Rotating hrs 6

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 966 Vis 50 WL 6 Gels 2 Solids 3 % FV 12 YP 5.3 pH
Oil 92 % Sand 0.001 % Cake 1 PPMCL 240000 PPMCa 128000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Hrs TODAY	CUM. Hrs	m/hr	Bit Cond. T	B	G
12rr1	222	V.ETDD437	140336			1817		Clean Out						
13	222	SI.F57OD	LT5838	8-10	80		9		6.00	6.00	1.50			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
12	12.7	12.7	12.7	203	133	152	1.44	11	82			6500
13	12.7	12.7	12.7	203	130	152	144	11	82			6500

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

CALCIUM CARBONATE-20
SAWDUST-43 INVERT-6
CALCIUM CHLORIDE-15
LIME-10

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-BIT SUB	161		0.98	
12-DRILL COLLARS	165		114.89	
168 DRILL PIPE	114		1,799.96	
1-KELLY			9.92	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	6.00	
2. Trips	10.25	
3. Rig Service	0.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	3.00	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	3.75	
14. Welding on		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

COSTS

DAILY	$51,048
CUMMULATIVE	$200,868

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 10 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: REVERSE CIRCULATE DST # 1.
TRIP OUT OF HOLE AND RECOVER AND READ RECORDERS.
SERVICE TOOL. LAY DOWN ON CATWALK.
RUN IN HOLE FOR CLEAN OUT. CIRCULATE. TRIP OUT OF HOLE.
BREAK DOWN AND LOAD OUT TEST TOOLS.
RUN IN HOLE. CIRCULATE TO BOTTOM.
DRILL 222mm HOLE.

FLOW LINE TEMP. - 27 C @ 18:00 Hrs.

CENTERFUGES- 1Hrs. INTAKE DENSITY-965 kg/m
OVERFLOW DENSITY-940 kg/m
UNDERFLOW DENSITY-1820 kg/m

RIG OUT ENTEST AND SEND TO C-76.
HAUL IN LOAD OF SAWDUST TO F-36 AND TRANSFER 26000kG DRILLED CUTTINGS TO RUDIGER ENTEPRIZE IN FT ST JOHN VIA COMPASS TRANSFER.

WANT LIST:

WEATHER: CLEAR -8C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

MAR-11-1999 07:00 PM

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99-03-09 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 32 Depth 1917 Metres last 24 hr 9 Rotating hrs 3.5

Activity at report time TRIP OUT DST # 1

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 960 Vis 50 WL 6.5 Gels 2 Solids 3 % PV 13 YP 4.8 pH

Oil 92 % Sand 0.001 % Cake 1 PPMCL 220000 PPMCa 128000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	Cum Hrs On Bit TODAY	Cum Hrs On Bit DRLD	Rot hrs TODAY	Cum. Rot hr	Cum. Circ. hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
11	222	Reed HP64	KT2818	8/12	100/145	1917	9	66	3.50	32.00	2.00	8	E	I

CIRCULATION RECORD

BIT NO.	JETS - mm			PUMP				ANN. VEL.		JET VEL.	HHP	SURF. PRESS.
	1	2	3	STROKE	SPM	LINER	m³/MIN	DP	DC			MPa
11	11.9	11.9	11.9	203	130	152	1.44	11	82			9000/10000

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

CALCUIM CARBONATE-25
SAWDUST-S

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-MOTOR	180		6.68	
1-FLOAT SUB	164		0.67	
1-NMDC	167		9.44	
1-PULSAR	161		1.14	
1-NMDC	158		9.39	
12-DC	165		114.88	
164-DP	114		1,716.90	
1-KELLY			12.90	

TIME ANALYSES

OPERATION	TODAY	CUM.
1. Drilling(Directional)	3.50	
2. Trips	11.00	
3. Rig Service	0.50	
4. Deviation Surveys	0.25	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	1.00	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	7.75	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$37,705
CUMMULATIVE	$149,820

SUPERVISOR D.McCULLOCH

PARA-D~1.XLS

DHK-10-1999 04:07 PM

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 09 24:00
Yr - Mon - Day - Hour

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DIRECTIONAL DRILL 222mm HOLE TO 1917m.
CIRCULATE UP SAMPLE. PUMP PILL.
HOLE DRAG ON FIRST 2 STANDS.
TRIP OUT OF HOLE AND LAY DOWN DIRECTIONAL TOOLS.
MAKE UP TEST TOOLS AND RUN IN HOLE.
PERFORM DST # 1 - INTERVAL-1905m- 1917m. (BOTTOM HOLE CONVENTIONAL)
PULL TEST TOOLS FREE AND TRIP OUT OF HOLE.
(FLIUD RECOVERY-660m, CONSISTING OF 108m WATERY INVERT, 552m SALT WATER.)

CENTERFUGES- 1Hrs. INTAKE DENSITY-965 kg/m
OVERFLOW DENSITY-940 kg/m
UNDERFLOW DENSITY-1820 kg/m

TNT HIGH PRESSURE WATERWORKS ON LOCATION WASHING 3.5mm STRING.
ENTEST RIGGING OUT GEMINI UNIT.

WANT LIST:

WEATHER: CLEAR -8C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 08 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 31 Depth 1908 Metres last 24 hr 45 Rotating hrs 22.5

Activity at report time: DIRECTIONAL DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 980 Vis 50 WL 6.5 Gels 2 Solids 3 % FV 13 YP 4.8 pH

Oil 92 % Sand 0.001 % Calc 1 PPMCL 220000 PPMCa 128000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
11	222	Reed HP64	KT2818	8/12	100/145		45	57	22.50	28.50	2.00			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
11	11.9	11.9	11.9	203	130	152	1.44	11	82			9000/10000

DEVIATION SURVEYS

3 2/7	°	at	1855 m	3	°	at	1893 m
3 1/5	°	at	1864 m		°	at	m
3	°	at	1874 m		°	at	m
2 8/9	°	at	1884 m		°	at	m

MUD & CHEMICALS ADDED

CARBO TECH-1
CALCIUM CHLORIDE-5
INVERT-5

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-MOTOR	180		6.66	
1-FLOAT SUB	164		0.67	
1-NMDC	167		9.44	
1-PULSAR	161		1.14	
1-NMDC	158		9.39	
12-DC	165		116.98	
164-DP	114		1,716.90	
1-KELLY			3.67	

COSTS

DAILY	$41,510
CUMMULATIVE	$1,460,545

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling(Directional)	22.50	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys	0.75	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 08 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DIRECTIONAL DRILL 222mm HOLE.

FLOW LINE TEMP. 32 C @ 22:00 Hrs.

CENTERFUGES- 1Hrs. INTAKE DENSITY-965 kg/m
OVERFLOW DENSITY-930 kg/m
UNDERFLOW DENSITY-1835 kg/m

BAKER HUGHES BOTTOM HOLE CONVENTIONAL TOOLS ,DELTA -P TEST CORP. ON LOCATION.
TNT HIGH PRESSURE WATERWORKS ON LOCATION.
HAULED IN LOAD OF SAWDUST AND TRANSFERRED OUT 26000 kg DRILLED CUTTING VIA COMPASS TRANSFER TO RUDIGER ENTERPRIZE IN FT ST JOHN.

WANT LIST:

WEATHER: OVERCAST -15C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

MAR-09-1999 06:01 PM
P.02

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 07 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 30 Depth 1863 Metres last 24 hr 35 Rotating hrs 14.5

Activity at report time DIRECTIONAL DRILL 222mm HOLE

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 960 Vis 50 WL 8 Gels 2 Solids 3 % FV 14 YP 3.8 pH
Oil 62 % Sand 0.001 % Cake 1 FPMCL 200000 PPMCa 1E+06

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Drill Cond. T	B	G
10RR9	222	S. GM89F	714137	8/10	100/145	1851	23	62	8.50	62.00	1.00	5	E	I
11	222	Rd. HP84	KT2818	8/12	100/145		12		6.00		2.00			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	RPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
10RR9	11.9	11.9	11.9	203	130	152	1.44	11	82			9000/10000
11	11.9	11.9	11.9	203	130	152	1.44	11	82			9200/10000

DEVIATION SURVEYS

3 1/9 ° at 1817 m
3 2/5 ° at 1826 m
3 3/5 ° at 1836 m
3 2/5 ° at 1845 m

MUD & CHEMICALS ADDED

CARBOMUL-1
CALCUIM CARB.- 20

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-MOTOR	180		6.66	
1-FLOAT SUB	164		0.67	
1-NMDC	167		9.44	
1-PULSAR	161		1.14	
1-NMDC	158		9.39	
12-DC	165		114.95	
179-DP	114		1,714.00	
1-KELLY			6.57	

COSTS

DAILY	$50,067
CUMMULATIVE	$1,419,035

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling(Directional)	10.50	
2. Trips	6.75	
3. Rig Service	0.75	
4. Deviation Surveys	0.75	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud	0.50	
7. Circulation (CTH)	0.25	
8. Rig Repair (Slip Line)	0.50	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 07 24:00
Yr - Mth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DIRECTIONAL DRILL 222mm HOLE.
CIRCULATE UP SAMPLE.
TRIP OUT OF HOLE FOR MOTOR FAILURE.
CHANGE BIT AND MOTOR. RUN IN HOLE.
SLIP DRILLING LINE. FINISH RUNNING INTO HOLE.
CLEAN TO BOTTOM.(3m FILL.)
STRAP-1851.44m. BOARD-1851.00m. NO CORRECTION.

FLOW LINE TEMP. 28 C @ 22:00 Hrs.

CENTERFUGES- 2Hrs. INTAKE DENSITY-965 kg/m
OVERFLOW DENSITY-930 kg/m
UNDERFLOW DENSITY-1645 kg/m

WANT LIST:

WEATHER: OVERCAST -19C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 08 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.882"

Day 29 Depth 1828 Metres last 24 hr 39 Rotating hrs 16.25

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 960 Vis 48 WL 7.5 Gels 2 Solids .3 % PV 13 YP 4.3 pH

Oil 82 % Sand 0.001 % Cake 1 PPMCL 200000 PPMCa 1E+06

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
10RR9	222	6. GM89F	714137	8/10	100/145		39	39 43	16.25	16.25 20.75	2.40			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	DHP	SURF. PRESS. kPa
10RR9	11.9	11.9	11.9	203	130	152	1.44	11	82			9000/10000

DEVIATION SURVEYS

2 6/9 °	at 1768 m	2 5/7 °	at 1807 m		
2 6/9 °	at 1777 m	°	at m		
2 5/7 °	at 1787 m	°	at m		
2 3/5 °	at 1797 m	°	at m		

MUD & CHEMICALS ADDED

LIME-9
CALCUIM CARB.- 20
CALCUIM CHLORIDE-4
SAWDUST-2

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-MOTOR	180		6.77	
1-FLOAT SUB	164		0.67	
1-NMDC	167		9.44	
1-PULSAR	161		1.14	
1-NMDC	158		9.36	
12-DC	165		114.98	
175-DP	114		1,675.66	
1-KELLY			9.78	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling (Directional)	16.25	
2. Trips	6.00	
3. Rig Service	0.75	
4. Deviation Surveys	0.75	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation (CTB)	0.25	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$36,636
CUMMULATIVE	$1,368,968

SUPERVISOR D.McCULLOCH

PARAMOUNT ENGINEERING

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 06 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: TRIP OUT OF HOLE AND CHANGE OUT MOTOR.
RUN IN THE HOLE.
CLEAN TO BOTTOM. 1.5m FILL.
DIRECTIONAL DRILL 222mm HOLE.

FLOW LINE TEMP. 31 C @ 20:00 Hrs.

CENTERFUGES- 2Hrs. INTAKE DENSITY-985 kg/m
OVERFLOW DENSITY-930 kg/m
UNDERFLOW DENSITY-1310 kg/m

WANT LIST:

WEATHER: WINDY -21 C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 05 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 28 Depth 1789 Metres last 24 hr 26 Rotating hrs 12.75

Activity at report time: TRIP FOR MOTOR

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 960 Vis 48 WL 7 Gels 2 Solids 3 % FV 13 YP 3.6 pH

Oil 91 % Sand 0.001 % Cake 1 PPMCl 166666 PPMCa 113333

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
8	222	S. GM69FD	697415	8-12	100/145	1783	20	87	8.25	40.40	2.16	4	E	
9	222	S. GM69F	714137	8-12	100	1789	6	6	4.50	6.00	4.50	1	A	

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
8	11.9	11.9	11.9	203	130	152	1.44	11	82			9200
8	11.9	11.9	11.9	203	130	152	1.44	11	82			9700

DEVIATION SURVEYS

2 4/5	°	at 1750 m	°	at	m
2 8/9	°	at 1789 m	°	at	m
	°	at m	°	at	m
	°	at m	°	at	m

MUD & CHEMICALS ADDED

OIL GEL-3
CALCUIM CARB.- 20
INVERT-8m3

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-MOTOR	180		8.21	
1-FLOAT SUB	164		0.67	
1-NMDC	167		9.44	
1-PULSAR	161		1.14	
1-NMDC	158		9.39	
12-DC	165		114.98	
170-DP	114		1,637.10	
1-KELLY			10.24	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling(Directional)	12.75	
2. Trips	8.25	
3. Rig Service	0.75	
4. Deviation Surveys	0.75	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	1.25	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

COSTS

DAILY	$47,124
CUMMULATIVE	$1,332,332

SUPERVISOR D.McCULLOCH

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 05 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.882"

OPERATIONS DETAIL: DIRECTIONAL DRILL 222mm HOLE TO 1783m.
TRIP OUT OF HOLE FOR BIT CHANGE.
DIRECTIONAL DRILL 222mm HOLE TO 1789m.
TRIP OUT OF HOLE FOR MOTOR FAILURE.

FLOW LINE TEMP. 30 C @ 21:00 Hrs.

CENTERFUGES- 2Hrs. INTAKE DENSITY-965 kg/m
OVERFLOW DENSITY-940 kg/m
UNDERFLOW DENSITY-1835 kg/m

WANT LIST:

WEATHER: LITE SNOW -20 C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 04 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 27 Depth 1763 Metres last 24 hr 49 Rotating hrs 22

Activity at report time DIRECTIONAL DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 960 Vis 49 WL 7 Gels 2 Solids 3 % PV 13 YP 3.8 pH
Oil 91 % Sand 0.001 % Cake 1 PPMCL 168586 PPMCa 113333

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
8	222	S. GM65FD	697415	8 - 12	100/145		49	67	22.00	32.25	2.07			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
8	11.9	11.9	11.9	203	130	152	1.44	11	82			9200

DEVIATION SURVEYS

3 5/7	° at	1691 m	2 2/5	° at	1730 m
3 2/7	° at	1701 m	2 1/2	° at	1739 m
2 4/5	° at	1710 m	2 3/5	° at	1749 m
2 1/2	° at	1720 m		° at	m

MUD & CHEMICALS ADDED

OIL GEL-3
CALCUIM CHLORIDE-4

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-MOTOR	180		8.21	
1-FLOAT SUB	164		0.67	
1-NMDC	167		9.44	
1-PULSAR	161		1.14	
1-NMDC	158		9.39	
12-DC	165		114.98	
168-DP	114		1,608.48	
1-KELLY			12.90	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling(Directional)	22.00	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys	1.25	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Welding on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$41,637
CUMMULATIVE	$1,285,208

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

MAR-05-1999 02:57 PM P.01

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 04 24:00
YY - Mth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DIRECTIONAL DRILL 222mm HOLE TO 1763m.

FLOW LINE TEMP. 30 C @ 20:00 Hrs.

CENTERFUGES- 2Hrs. INTAKE DENSITY-960 kg/m
OVERFLOW DENSITY-940 kg/m
UNDERFLOW DENSITY-1850 kg/m

HAUL IN HIGH HOE AND EXTEND SUMP.

WORK ON ACCESS ROAD WITH GRADER AND WATER TRUCK.

WANT LIST:

WEATHER: LITE SNOW -18 C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 03 24:00
YY - Mth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 26 Depth 1714 Metres last 24 hr 27 Rotating hrs 15.5

Activity at report time DIRECTIONAL DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt	980	Vis	49	WL	7	Gels	2	Solids	3 %	PV	13	YP	3.8	pH	
Oil	91 %	Sand	0.001 %			Cake	1	PPMCL	166666			PPMCa	113333		

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
7	222	HC.HR-40-C	VOOYH	8-12	100/145	1698	9	42	5.25	14.50	2.89	8	E	I
8	222	S. GM69FD	697415	8-12	100/145		18		10.25		1.75			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
7	11.9	11.9	11.9	203	130	152	1.44	11	82			8200
8	11.9	11.9	11.9	203	130	152	1.44	11	82			9500

DEVIATION SURVEYS

4	° at	1682 m	4	° at	m
3 5/7	° at	1691 m		° at	m
	° at	m		° at	m
	° at	m		° at	m

MUD & CHEMICALS ADDED

INVERT-5m3 SOLUFLAKE-5
CALCUIM CARB.- 15
CALCUIM CHLORIDE-4
OIL GEL-3

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-MOTOR	160		6.21	
1-FLOAT SUB	164		0.67	
1-NMDC	167		9.44	
1-PULSAR	161		1.14	
1-NMDC	158		9.39	
12-DC	165		114.98	
163-DP	114		1,560.38	
1-KELLY			11.73	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling(Directional)	15.50	
2. Trips	6.75	
3. Rig Service	0.75	
4. Deviation Surveys	0.75	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation (CTH)	0.25	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21.Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$48,544
CUMMULATIVE	$1,243,571

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

MAR-04-1999 05:47 PM P.01

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 03 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DIRECTIONAL DRILL 222mm HOLE TO 1696m.
TRIP OUT OF HOLE. CHANGE BIT AND SET UP MOTOR TO 1.25.
RUN IN HOLE.
DIRECTIONAL DRILL 222mm HOLE.

FLOW LINE TEMP. 29 C @ 20:00 Hrs.

CENTERFUGES- 2Hrs. INTAKE DENSITY-960 kg/m
OVERFLOW DENSITY-940 kg/m
UNDERFLOW DENSITY-1850 kg/m

WORK ON ACCESS ROAD WITH GRADER AND WATER TRUCK.

WANT LIST:

WEATHER: LITE SNOW -15 C ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 98 03 02 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 25 Depth 1687 Metres last 24 hr 33 Rotating hrs 9.25

Activity at report time DIRECTIONAL DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 960 Vis 51 WL 7.5 Gels 2 Solids 3 % PV 12 YP 4.3 pH

Oil 91 % Sand 0.001 % Cake 1 PPMCL 166666 PPMCa 113333

BIT RECORD

BIT NO.	SIZE mm	MAKER & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
7	222	HC.HR-40-C	V00YH	7-10	100/145		33	33	9.25	9.25	3.57			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	RPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
7	11.9	11.9	11.9	203	120	152	1.44	11	82			9700

DEVIATION SURVEYS

3 1/5 °	at	1637 m	4 °	at	1672 m
2 8/9 °	at	1643 m	°	at	m
3 1/2 °	at	1653 m	°	at	m
3 4/5 °	at	1663 m	°	at	m

MUD & CHEMICALS ADDED

FLOOR DRY -1
CARBO TECH-2
LIME-8

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	222		0.27	
1-MOTOR	180		6.21	
1-FLOAT SUB	184		0.67	
1-NMDC	167		9.44	
1-PULSAR	161		1.14	
1-NMDC	158		9.39	
12-DC	165		114.98	
161-DP	114		1,541.22	
1-KELLY			3.80	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling(Directional)	9.25	
2. Trips	9.00	
3. Rig Service	0.75	
4. Deviation Surveys	2.50	
5. Recm & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair (Rig/Crew)	1.50	
9. Run Casing & Cement		
10. Fishing	0.75	
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Rigging Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

COSTS

DAILY	$57,038
CUMMULATIVE	$1,195,027

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

MAR-03-1999 02:48 PM P.01

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING: 99 03 02 24:00
Yr - Mon - Day - Time

WELL NAME: PARAMOUNT ET AL LIARD LOCATION: A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: RUN IN HOLE WITH MAGNET.
CIRCULATE AND WORK MAGNET.
TRIP OUT OF HOLE AND RECOVER CONE AND 2 BEARING CARRIERS.
PICK UP UNITED GEO COM DRILLING SERVICES DIRECTIONAL TOOLS AND MWD.
DIRECTIONAL SURVEY TO BOTTOM.
DRILL 222mm HOLE.
SLIDE 1678m TO 1687m.

FLOW LINE TEMP. 26 C @ 18:00 Hrs.

CENTERFUGES- 2Hrs. INTAKE DENSITY-965 kg/m
OVERFLOW DENSITY-935 kg/m
UNDERFLOW DENSITY-1300 kg/m

HAULED IN C&V PORTABALE WELLSITE UNIT FROM RIG # 379 WITH SWANBERG.

CREW CHANGE WITH ALTA FLIGHTS.

WORK ON ACCESS ROAD WITH GRADER AND WATER TRUCK.

WANT LIST:

WEATHER: LITE SNOW -11 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 03 01 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.841"-123 15' 4.862"

Day 24 Depth 1654 Metres last 24 hr 0 Rotating hrs

Activity at report time RUN IN HOLE WITH MAGNET

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 950 Vis 47 WL 8 Gels 2 Solids 3 % PV 14 YP 4.9 pH

Oil 90 % Sand 0.001 % Cake 1 PPMCL 142857 PPMCa 97142

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
6RR4	222 178	RB145LRGS B.H. MAG	BR842 980235	lean Out To Top Of Fish.										

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	STM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
6RR4	12.7	12.7	11.9	203	60	152	1.44	11	82			6800

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

CALCUIM CARBONATE-15

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-MAGNET	178		0.40	
1-BIT SUB	161		0.89	
12-DRILL COLLARS	165		114.66	
160-DRILL PIPE	114		1,531.63	
KELLY	114		5.77	

COSTS

DAILY	$35,135
CUMMULATIVE	$1,137,989

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	20.00	
3. Rig Service	0.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2.25	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing	1.00	
11. Logging		
12. Coring		
13. Formation Testing		
14. Welding on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 03 01 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: TRIP MILL OUT OF HOLE.
MAKE UP MAGNET AND RUN IN HOLE.
CIRCULATE AND WORK MAGNET.
TRIP OUT OF HOLE. RECOVER STEEL SLIVERS AND BALL BEARINGS..
RUN IN HOLE WITH BIT. CIRCULATE AND WORK ON JUNK
TRIP OUT OF HOLE.
RUN IN HOLE WITH MAGNET. CIRCULATE AND WORK MAGNET.
TRIP OUT OF HOLE AND RECOVER ONE CONE.
RUN MAGNET BACK INTO HOLE.
FLOW LINE TEMP. 25 C @ 21:00 Hrs.

WANT LIST:

WEATHER: OVERCAST -10C ROAD: POOR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 28 24:00
(Y - Mth - Day - Time)

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.841"-123 15' 4.862"

Day 23 Depth 1654 Metres last 24 hr 0 Rotating hrs 5.25

Activity at report time TRIP OUT MILL.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 950 Vis 47 WL 8 Gels 2 Solids 3 % PV 14 YP 4.9 pH

Oil 80 % Sand 0.001 % Cake 1 PPMCL 142857 PPMCa 97142

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	JET WT	JET RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
5	222	RB145LRGS	ER842	Been Out To Top Of Fish.										
	200	B.H. MAG	6367											
	215	B. H. MILL	980602											

CIRCULATION RECORD

BIT NO.	JETS - mm			PUMP				ANN. VEL.		JET VEL.	HHP	SURF. PRESS. kPa
	1	2	3	STROKE	SPM	LINER	m³/MIN	DP	DC			
5	12.7	12.7	11.9	203	80	152	1.44	11	82	-	-	6300

DEVIATION SURVEYS

• at	m	• at	m
• at	m	• at	m
• at	m	• at	m
• at	m	• at	m

MUD & CHEMICALS ADDED

INVERT-5m3
CALCUIM CARBONATE-35

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-MIL	215		0.85	
1-BIT SUB	161		0.89	
12-DRILL COLLARS	165		114.85	
160-DRILL PIPE	114		1,531.63	
KELLY	114		5.77	

COSTS

DAILY	$48,737
CUMMULATIVE	$1,102,854

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	15.25	
3. Rig Service	0.50	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	0.50	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing	2.50	
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

MAR-01-1999 03:54 PM

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 28 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: REAM UNDER GAUGE HOLE FROM 1636m TO 1654m.
TRIP OUT OF HOLE.
RUN IN HOLE WITH MAGNET. CIRCULATE TO TOP OF FISH. WORK TOOL.
TRIP OUT OF HOLE. RECOVER STEEL SLIVERS.
RUN IN HOLE WITH 21Mmm MILL. MILL ON FISH.
TRIP MILL OUT OF HOLE.

FLOW LINE TEMP. 27 C @ 23:00 Hrs.

HAUL IN LOAD OF SAWDUST WITH COMPASS TRANSPORT AND TRANSFER
LOAD OF DRILLED CUTTINGS (26000 kg) TO RUDIGER ENTERPRIZE IN FT ST JOHN.

WANT LIST:

WEATHER: OVERCAST -10C ROAD: POOR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

PARAMOUNT PETROLEUM LTD.

FOR 24 HR PERIOD ENDING 99 02 27 24:00
Yr - Mth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.882"

Day 22 Depth 1854 Metres last 24 hr 16 Rotating hrs 6.5

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 950 Vis 47 WL 8 Gels 2 Solids 3 % FV 14 YP 4.9 pH ...

Oil 80 % Sand 0.001 % Cake 1 PPMCL 142857 PPMCa 97142

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
4	222	RBIC3LRGS	BR520	10-15	60/120	1854	16	204	6.50	50.25	4.05	8	L2C	BHE
5	222	RBIC45LRGS	BR842	/	80									

CIRCULATION RECORD

BIT NO.	JETS - /32 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
4	12.7	12.7	12.7	203	60	152	1.44	11	82			6300
5	12.7	12.7	11.9									

DEVIATION SURVEYS

3 1/2 ° at 1648 m ° at m

° at m ° at m

° at m ° at m

° at m ° at m

MUD & CHEMICALS ADDED

INVERT-6m3 FLOOR DRY-3

CALCUIM CARBONATE-25

OIL GEL 3000-3

SOLUFLAKE -5

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.89	
12-DRILL COLLARS	165		114.86	
158-DRILL PIPE	114		1,512.50	
KELLY	114		11.50	

COSTS

DAILY	$52,362
CUMMULATIVE	$1,054,117

SUPERVISOR D.McCULLOCH

TIME ANALYSES

OPERATION	TODAY	CUM.
1. Drilling	6.50	
2. Trips	14.50	
3. Rig Service	0.75	
4. Deviation Surveys	0.50	
5. Ream & Cond. Hole	1.25	
6. Mix & Cond. Mud	0.50	
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 27 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.782"

OPERATIONS DETAIL: DRILL 222mm HOLE
SURVEY. PUMP PILL AND TRIP OUT OF HOLE.
LAY DOWN 4 DRILL COLLARS.RUN IN HOLE WITH NEAR BIT STABILIZER.
PROBLEM WITH RUBBER FROM CEMENT WIPER PLUG.
TRIP OUT OF HOLE AND LAY DOWN STABILIZER.
CHANGE BHA AND RUN IN HOLE.
REAM UNDER GAUGED HOLE.

FLOW LINE TEMP. 27 C @ 23:00 Hrs.
CENTERFUGES-2 Hrs. INTAKE DENSITY-955 kg/m.
OVERFLOW DENSITY-935 kg/m.
UNDERFLOW DENSITY-1835 kg/m

HAULED DIRECTIONAL TOOLS FROM RIG # 379 WITH STAN DEAN & SONS TRUCKING.

UNITED GEO HANDS FLOWN IN VIA ALTA FLIGHTS.

WANT LIST:

WEATHER: CLEAR -13 C ROAD: POOR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

FEB-28-1999 06:28 PM P.01

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 26 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 21 Depth 1638 Metres last 24 hr 51 Rotating hrs 22

Activity at report time: DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 950 Vis 47 WL 8 Gels 2 Solids 3 % PV 14 YP 4.9 pH

Oil 80 % Sand 0.001 % Cake 1 PPMCL 142857 PPMCa 97142

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
4	222	RBIC3LRGS	BR526		60/120		51	188	22.00	43.75	4.30			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
4	12.7	12.7	12.7	203	60	152	1.44	11	82			6300

DEVIATION SURVEYS

2 1/4 ° at 1619 m

° at m

° at m

° at m

° at m

° at m

° at m

° at m

MUD & CHEMICALS ADDED

INVERT-5m3 LIME-20

CALCUIM CARBONATE-5

OIL GEL 3000-3

SOLUFLAKE -10

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
16-DRILL COLLARS	165		153.17	
154-DRILL PIPE	114		1,473.90	
KELLY	114		9.77	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	22.00	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys	0.50	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	0.25	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.50	
TOTAL	24.00	

COSTS

DAILY	$31,559
CUMMULATIVE	$1,001,755

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 26 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL222mm HOLE

FLOW LINE TEMP. 29 C @ 22:00 Hrs.
CENTERFUGES-1 Hrs. INTAKE DENSITY-955 kg/m.
OVERFLOW DENSITY-940 kg/m.
UNDERFLOW DENSITY-1845 kg/m

HAULED SLEEPER UNIT FROM RIG # 379 WITH STAN DEAN & SONS TRUCKING.

HAULED IN LOAD OF SAWDUST AND TRANSFERRED OUT 25000 kg DRILLED CUTTINGS WITH COMPASS TRANSPORT TO RUDIGER ENTERPRIZES IN FT ST JOHN.

WANT LIST:

WEATHER: CLEAR -10 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 25 24:00
Yr - Mon - Day - Hour

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 20 Depth 1587 Metres last 24 hr 133 Rotating hrs 21

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 950 Vis 47 WL 8 Gels 2 Solids 3 % PV 14 YP 5.8 pH

Oil 90 % Sand 0.001 % Cake 1 PPMCL 157143 PPMCa 102857

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	ROP m/hr	Dull Cond. T	B	G
4	222	RBIC3LRGS	BR528	10/15	80/120		133	137	21.00	21.75	6.29			

CIRCULATION RECORD

BIT NO.	JETS - mm			PUMP				ANN. VEL.		JET VEL.	HHP	SURF. PRESS. kPa
	1	2	3	STROKE	SPM	LINER	m³/MIN	DP	DC			
4	12.7	12.7	12.7	203	60	152	1.44	11	82			8500

DEVIATION SURVEYS

3/4	° at	1476 m	°	at	m
1 1/4	° at	1523 m	°	at	m
1 1/2	° at	1571 m	°	at	m
	° at	m	°	at	m

MUD & CHEMICALS ADDED

INVERT-Sm3
CALCUIM CLORIDE-5
OIL GEL 3000-3
SOLUFLAKE -10

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
16-DRILL COLLARS	165		153.17	
149-DRILL PIPE	114		1,428.63	
KELLY	114		6.04	

COSTS

DAILY	$49,209
CUMMULATIVE	$970,196

SUPERVISOR D.McCULLOCH

TIME ANALYSES

OPERATION	TODAY	CUM.
1. Drilling	21.00	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys	1.50	
5. Mount & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	0.75	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 25 24:00
YY - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL222mm HOLE

FLOW LINE TEMP. 27 C @ 17:00 Hrs.
CENTERFUGES-3 Hrs. INTAKE DENSITY-950 kg/m.
OVERFLOW DENSITY-920 kg/m.
UNDERFLOW DENSITY-1840 kg/m

HAULED DRILLING MUD PRODUCTS FROM RIG # 379 WITH STAN DEAN & SONS TRUCKING.
RIG UP AIR DRILLING EQUIPMENT.

WANT LIST:

WEATHER: CLEAR -10 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 24 24:00
YY - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 19 Depth 1454 Metres last 24 hr 91 Rotating hrs 16

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 950 Vis 47 WL 8 Gels 2 Solids 3 % PV 17 YP 4.8 pH

Oil 90 % Sand 0.001 % Cake 1 PPMCl 142857 PPMCa 102857

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Drill Cond. T	B	G
3RR2	222	V.ETD527XG	139838	4/6	70/120	1450	87	334	14.00	53.00	6.30	4		
4	222	RBI C3LRGSF	BR528	5/6	60/120		4	4	0.75	0.75	5.33			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
3RR2	12.7	12.7	12.7	203	60	152	1.44	11	82			6500
4	12.7	12.7	12.7	203	130	152	1.44	11	82			6500

DEVIATION SURVEYS

1 7/8 °	at	1390 m	°	at	m
1 1/2 °	at	1428 m	°	at	m
°	at	m	°	at	m
°	at	m	°	at	m

MUD & CHEMICALS ADDED

INVERT-5m3
CALCUIM CARBONATE-20
OIL GEL 3000- 5
FLOOR DRY-1

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
18-DRILL COLLARS	165		153.17	
135-DRILL PIPE	114		1,292.77	
KELLY	114		8.90	

COSTS

DAILY	$44,323
CUMMULATIVE	$920,987

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	15.75	
2. Trips	5.25	
3. Rig Service	0.75	
4. Deviation Surveys	1.00	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud(CTD)	1.25	
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 23 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL222mm HOLE
CIRCULATE UP SAMPLE. PUMP PILL.
TRIP OUT OF HOLE.
MAKE UP BHA AND RUN IN HOLE.
CLEAN 8m TO BOTTOM.
DRILL 222mm HOLE.

FLOW LINE TEMP. 27 C @ 17:00 Hrs.
CENTERFUGES-2 Hrs. INTAKE DENSITY-955 kg/m.
OVERFLOW DENSITY-940 kg/m.
UNDERFLOW DENSITY-1850 kg/m

HAULED IN CANADIAN AIR BUILDINGS AND RELATED EQUIPMENT WITH STAN DEAN & SONS TRUCKING AND NORANCO TRANSPORT FROM RIG # 507.
HAUL IN LOAD OF SAWDUST AND TRANSFER OUT 26000kg DRILLED CUTTINGS VIA COMPASS TRANSFER TO REDIGER ENTERPRIZEE IN FT ST JOHN.

WANT LIST:

WEATHER: CLEAR -10 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

FEB-25-1999 03:29 PM
P.02

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 23 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 18 Depth 1363 Metres last 24 hr 30 Rotating hrs 8

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 950 Vis 54 WL 7.5 Gels 2 Solids 3 % PV 19 YP 4.3 pH

Oil 90 % Sand 0.001 % Cake 1 PPMCL 128571 PPMCa 102857

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	to DRILL TODAY	CUM to DRILL	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
1C	156	ARC-325	1902608	3-4	60	1351	18	18	2.00	2.00	9.00	Good		
3RR2	222	V.ETD527XG	139698	4-8	130		30	245	6.00	40.00	6.12			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
1C				203	60	152	0.666	5	46			4400
3	12.7	12.7	12.7	203	130	152	1.44	11	82			6500

DEVIATION SURVEYS

2	°	at	1351 m	°	at		m
	°	at	m	°	at		m
	°	at	m	°	at		m
	°	at	m	°	at		m

MUD & CHEMICALS ADDED

INVERT-5m3

CALCUIM CARBONATE-20

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
16-DRILL COLLARS	165		153.17	
125-DRILL PIPE	114		1,198.71	
KELLY	114		12.90	

COSTS

DAILY	$46,926
CUMMULATIVE	$876,664

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	2.00	
2. Trips	8.75	
3. Rig Service	0.75	
4. Deviation Surveys	0.50	
5. Ream & Cond. Hole	2.00	
6. Mix & Cond. Mud(CTS)	0.25	
7. Circulation (Samples)	2.50	
8. Rig Repair	1.00	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring (Lay Down Barrels)	4.00	
13. Formation Testing		
14. Waiting on: Jars	3.25	
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 23 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: WAIT ON JARS.
RUN IN HOLE.CLEAN 16m TO BOTTOM.
CIRCULATE. DROP BALL.
CUT CORE # 1.
CIRCULATE BOTTOMS UP. PUMP PILL.
TRIP OUT OF HOLE AND RECOVER CORE. (FULL RECOVERY)
SERVICE AND LAY DOWN CORE BARREL'S.
MAKE UP BHA AND RUN IN HOLE. REAM RATHOLE.
DRILL AND SURVEY 222mm HOLE.
FLOW LINE TEMP. 27 C @ 22:00 Hrs.
CENTERFUGES-2 Hrs. INTAKE DENSITY-955 kg/m.
OVERFLOW DENSITY-840 kg/m.
UNDERFLOW DENSITY-1850 kg/m

HAULED IN CANADIAN AIR BUILDING AND RELATED EQUIPMENT WITH STAN DEAN & SONS TRUCKING AND NORANCO TRANSPORT FROM RIG # 507.

WANT LIST:

WEATHER: CLEAR -8 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 22 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 17 Depth 1333 Metres last 24 hr 99 Rotating hrs 12

Activity at report time WAIT ON JARS.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 955 Vis 54 WL 8 Gels 2 Solids 3 % PV 18 YP 4.8 pH

Oil 90 % Sand 0.001 % Cake 1 PPMCL 128571 PPMCa 102857

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
2	222	V. ETD527-XG	139836	10-12	65/120	1333	99	215	11.75	34.00	8.32	2	2	I

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa	
2	12.7	12.7	12.7	203	130	152	1.44	11	82			6100	6200

DEVIATION SURVEYS

1 1/2	° at	1255 m	° at	m	
2	° at	1313 m	° at	m	
	° at	m	° at	m	
	° at	m	° at	m	

MUD & CHEMICALS ADDED

INVERT-5m3
CALCUIM CARBONATE-20
OIL GEL-3
CALCUIM CHLORIDE-4

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
16-DRILL COLLARS	165		153.17	
122-DRILL PIPE	114		1,167.93	
KELLY	114		8.74	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	11.75	
2. Trips	2.50	
3. Rig Service	0.75	
4. Deviation Surveys	1.00	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation (Samples)	5.75	
8. Rig Repair (Rig & Out)	1.00	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring(Pick Up Tools)	1.25	
13. Formation Testing		
14. Waiting on:Cement		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Take out		
21.Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$41,050
CUMMULATIVE	$829,738

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 22 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL AND SURVEY 222mm HOLE TO 1306m.
CIRCULATE UP SAMPLE.
DRILL 222mm HOLE TO 1325m. CIRCULATE UP SAMPLE.
DRILL 222mm HOLE TO 1331m. CIRCULATE UP SAMPLE.
DRILL 222mm HOLE TO 1332m. CIRCULATE UP SAMPLE.
DRILL 222mm HOLE TO 1333m. CIRCULATE UP SAMPLE.
PUMP PILL AND TRIP OUT OF HOLE.
PICK UP CORE BARRELS. SLIP AND CUT DRILLING LINE.

FLOW LINE TEMP. 28 C @ 17:00 Hrs.
CENTERFUGES-2 Hrs. INTAKE DENSITY-950 kg/m.
OVERFLOW DENSITY-935 kg/m.
UNDERFLOW DENSITY-1800 kg/m

HAULED IN ALPINE "C" BUILDING AND RELATED EQUIPMENT WITH STAN DEAN & SONS TRUCKING FROM RIG # 507.
SENT NORANCO TRANSPORT LTD. PICKER TO RIG # 379 TO PICK UP CORE BARRELS AND HANDLING GEAR AND HAUL TO LOCATION. RETURN 2 JOINTS 349mm CASING TO BASE CAMP.
HAULED IN LOAD OF SAWDUST AND TRANSFERED OUT 26000 kg DRILLED CUTTING VIA COMPASS TRANSFER TO RUDIGER ENTERPRIZE IN FT ST JOHN.

WANT LIST:

WEATHER: OVERCAST -9 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 21 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 16 Depth 1234 Metres last 24 hr 116 Rotating hrs 22.25

Activity at report time: DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 955 Vis 53 WL 8 Gels 2 Solids 3 % FV 16 YP 5.8 pH

Oil 80 % Sand 0.001 % Cake 1 PPMCL 157142 PPMCa 102857

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
2	222	V. ETD527-XC	139838	4- 14	65/120		116	116	22.25	22.25	5.21			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
2	12.7	12.7	12.7	203	130	152	1.44	11	82			6100

DEVIATION SURVEYS

1 2/3	° at	1149 m	°	at	m
1 1/2	° at	1198 m	°	at	m
	° at	m	°	at	m
	° at	m	°	at	m

MUD & CHEMICALS ADDED

INVERT-8m3
SADA ASH-1
OIL GEL-5

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
16-DRILL COLLARS	165		153.17	
112-DRILL PIPE	114		1,071.86	
KELLY	114		7.81	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	22.25	
2. Trips		
3. Rig Service	0.50	
4. Deviation Surveys	1.00	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud	0.25	
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on Cement		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$31,769
CUMMULATIVE	$788,688

SUPERVISOR D.McCULLOCH

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 21 24:00
Yr - Mo - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL AND SURVEY 222mm HOLE.

FLOW LINE TEMP. -28 C @ 22:00 Hrs.
CENTERFUGES - 8 Hrs. INTAKE DENSITY - 975-955kg/m
OVERFLOW DENSITY-935kg/m
UNDERFLOW DENSITY-1800kg/m

NOTE: CHANGE PHONE # 1-600-700-5547
FAX # 1-403-508-0891

WANT LIST:

WEATHER: LITE SNOW -9 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 20 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL. LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 15 Depth 1118 Metres last 24 hr 134 Rotating hrs 14.25

Activity at report time CLEAN TO BOTTOM

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 980 Vis 53 WL 7.5 Gels 2 Solids 3 % PV 17 YP 5.3 pH

Oil 90 % Sand 0.001 % Cake 1 PPMCL 142857 PPMCa 102857

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
1	222	V. ETD437-XG	140335	6-14	65/120	1118	134	615	14.25	61.00	10.08	4	4	I
2	222	V.ETD527-XG	139636											

CIRCULATION RECORD

BIT NO.	JETS - mm			PUMP				ANN. VEL.		JET VEL.	HHP	SURF. PRESS. kPa	
	1	2	3	STROKE	SPM	LINER	m³/MIN	DP	DC				
1	12.7	12.7	12.7	203	130	152	1.44	11	62			6000	6200
2	12.7	12.7	12.7	203		152							

DEVIATION SURVEYS

1	°	at	997 m	°	at	m
1	°	at	1044 m	°	at	m
1 1/2	°	at	1092 m	°	at	m
	°	at	m	°	at	m

MUD & CHEMICALS ADDED

INVERT-9m3 CALCUIM CAR.-20

LIME-20

CARBOTECH-1

OILGEL-5

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
16-DRILL COLLARS	165		153.17	
100-DRILL PIPE	114		958.94	
KELLY	114		6.73	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	14.25	
2. Trips	5.75	
3. Rig Service	0.75	
4. Deviation Surveys	1.50	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud	1.00	
7. Circulation (CTE)	0.50	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on Cement		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

COSTS

DAILY	$100,963
CUMMULATIVE	$756,919

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 20 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL AND SURVEY 222mm HOLE.
CIRCULATE BOTTOMS UP.
TRIP FOR BIT. WORK TIGHT HOLE @ 928m
FUNCTION BLIND RAMS. MAKE UP BHA AND RUN IN HOLE.
CLEAN 25m TO BOTTOM.
TALLY-1116m. STRAP -1116.34m. NO CORRECTION MADE.
FLOW LINE TEMP. 29 C @ 17:00 Hrs.
RIG UP ENTEST EQUIPMENT.
TRANSFER 26000 kg DRILLED CUTTINGS VIA COMPASS TRANSFER TO RUDIGER ENTERPRIZE IN FORT ST JOHN.

NOTE: CHANGE PHONE # 1-600-700-5547
FAX # 1-403-508-0891

WANT LIST:

WEATHER: LITE OVERCAST -7 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 19 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 14 Depth 984 Metres last 24 hr 184 Rotating hrs 22

Activity at report time: DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 976 Vis 54 WL 8 Gels 2 Solids 1 % PV 17 YP 4.8 pH

Oil 92 % Sand 0.001 % Cake 1 PPMCl 114285 PPMCa 114285

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Tooth Cond. T	B	G
1	222	V. ETD437-XG	140335	4-10	65/120		184	481	21.50	48.75	10.20			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
1	12.7	12.7	12.7	203	130	152	1.44	11	82			6000

DEVIATION SURVEYS

3/4	°	at	835 m	°	at	m
1	°	at	890 m	°	at	m
1	°	at	939 m	°	at	m
	°	at	m	°	at	m

MUD & CHEMICALS ADDED

DIESEL-5m3
LIME-10
CALCUIM CHLORIDE-4
CARBOMUL-HT-1

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
16-DRILL COLLARS	165		153.17	
86-DRILL PIPE	114		822.84	
KELLY	114		6.83	

COSTS

DAILY	$39,582
CUMMULATIVE	$655,958

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	21.50	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys	1.50	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	0.25	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on Cement		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 19 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: DRILL AND SURVEY 222mm HOLE.

FLOW LINE TEMPERTURE- @ 21:00 - 30 C.

TRANSFER FLARE STACK AND ENTEST EQUIPMENT FROM 0-15 WITH POWELL TRUCKING, PRINCIPLE TRUCKING, AND STAN DEAN & SONS LTD.
HAUL IN 177.8mm CASING AND BACK HAUL DEVERTER SKID UNIT TO BASE CAMP WITH PRINCIPLE TRUCKING AND RETURN TO FORT ST. JOHN.

NOTE: CHANGE PHONE # 1-600-700-5547
FAX # 1-403-508-0891

WANT LIST:

WEATHER: LITE OVERCAST -9 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 19 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 13 Depth 800 Metres last 24 hr 240 Rotating hrs 20.25

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt	950	Vis	54	WL	10	Gels	2	Solids	1 %	PV	18	YP	4.3	pH	
Oil	92 %	Sand	0.001 %			Cake	0.5		PPMCL 114285			PPMCa	102847		

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
1	222	V. ETD437-XG	140335	4/- @	65/120		240	297	20.25	25.25	11.76			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
1	12.7	12.7	12.7	203	130	152	1.44	11	82			5300

DEVIATION SURVEYS

1 1/4	° at	575 m	1 1/4	° at	785 m
1 1/4	° at	625 m		° at	m
1 1/2	° at	680 m		° at	m
1	° at	728 m		° at	m

MUD & CHEMICALS ADDED

DIESEL-8m3
OILGEL 3000- 10
CALCUIM CHLORIDE-8
CARBOMUL-HT-2

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.91	
16-DRILL COLLARS	165		153.17	
67-DRILL PIPE	114		640.82	
KELLY	114		4.85	

COSTS

DAILY	$39,047
CUMMULATIVE	$818,394

SUPERVISOR D.McCULLOCH

TIME ANALYSES

OPERATION	TODAY	CUM.
1. Drilling	20.25	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys	2.25	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	0.50	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on Cement		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 18 24:00
YY - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: BOP DRILL AND SAFETY MEETING.
DRILL AND SURVEY 222mm HOLE
FLOW LINE TEMPERTURE- @ 23:30 - 28 C

TRANSFER 60m3 INVERT FROM BASE CAMP .

INSTALL ANCHORS FOR FLARE STACK.

NOTE: CHANGE PHONE # 1-600-700-5547
FAX # 1-403-508-0691

WANT LIST:

WEATHER: CLEAR -8 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

FEB-19-1999 05:13 PM

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 17 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 12 Depth 560 Metres last 24 hr 57 Rotating hrs 5

Activity at report time DRILL 222mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 985 Vis 68 WL 10 Gels 2 Solids 1 % PV 54 YP 4.3 pH
Oil 93 % Sand 0.001 % Cake 0.5 PPMCL 116667 PPMCa 100000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
1	222	V. ETD437-XC	140335	4 - 6	65/90		57		5.00		11.40			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
1	12.7	12.7	12.7	203	130	152	1.44	11	82			7300

DEVIATION SURVEYS

1 1/4 ° at 530 m ° at m
° at m ° at m
° at m ° at m
° at m ° at m

MUD & CHEMICALS ADDED

DIESEL-7.5m3
INVERT-57m3

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-BIT	222		0.25	
1-BIT SUB	161		0.81	
16-DRILL COLLARS	165		153.17	
42-DRILL PIPE	114		402.38	
KELLY	114		3.31	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	5.00	
2. Trips	1.50	
3. Rig Service	0.50	
4. Deviation Surveys	0.25	
5. Ream & Cond. Hole	1.00	
6. Mix & Cond. Mud	1.50	
7. Circulation (Displace)	1.75	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on Cement		
15. Nipple Up & Test BOPS	10.75	
16. Drilling Out	1.50	
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.25	
TOTAL	24.00	

COSTS

DAILY	$44,204
CUMMULATIVE	$577,347

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 17 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: NIPPLE UP BOP's.
PRESSURE TEST WITH FALCON PRESSURE TESTERS.
(BLIND RAMS, MANIFOLD,CHOKE LINE.)
MAKE UP BHA AND RUN IN HOLE. CIRCULATE.
PRESSURE TEST-LOWER PIPE RAMS, UPPER PIPE RAMS,ANNULAR, BOP VALVES, HCR VALVE, KILL LINE VALVES, STABBING VALVE, INSIDE BOP, UPPER AND LOWER KELLY COCKS.
ACCUMMULATER CHECK. BOP DRILL AND CHECK MOTOR KILLS.
DRILL OUT FLOAT, CEMENT AND SHOE. DRILL 5m NEW HOLE. CIRCULATE BOTTOMS UP. PERFORM LEAK OFF TEST.
HYDROSTATIC PRESSURE- 5526.56 kPa
LEAK OFF PRESSURE- 9700 kPa.
FORMATION GRADIENT 30.2 kPa/m
DRILL AND SURVEY 222mm HOLE.

NOTE: CHANGE PHONE # 1-600-700-5547
FAX # 1-403-508-0891

WANT LIST:

WEATHER: OVERCAST -11 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

MAXIMUM ALLOWABLE CASING PRESSURE

WELL NAME: PARAMOUNT ET AL LIARD
NO: 60 00' 4.641"- 123 15' 4.862"

CASING: 349.7mm.81.1kg/m,K-55 , ERW, ST&C LANDED AT: 503

FORMATION RUPTURE:

30.2 KPA/M X 503 M= 15190.6 KPA (ASSUMED)

OR KPA FROM LEAK OFF TEST

LIMITS

BOP'S 21000 KPA BOWL: 21000 KPA

MAXIMUM HOLD BACK WITH GAS TO SURFACE: 15190.6 KPA

MAXIMUM HOLD BACK WITH FLUID IN WELL BORE:

DENSITY KG/M3	MACP KPA
1000	10256
1010	10207
1020	10157
1030	10108
1040	10059
1050	10009
1060	9960
1070	9911
1080	9861
1090	9812
1100	9763
1110	9713
1120	9664
1130	9615
1140	9565
1150	9516
1160	9467
1170	9417
1180	9368
1190	9319
1200	9269
1210	9220
1220	9171
1230	9121
1240	9072
1250	9023

DENSITY KG/M3	MACP KPA
1250	9023
1260	8973
1270	8924
1280	8875
1290	8825
1300	8776
1310	8726
1320	8677
1330	8628
1340	8578
1350	8529
1360	8480
1370	8430
1380	8381
1390	8332
1400	8282
1410	8233
1420	8184
1430	8134
1440	8085
1450	8036
1460	7986
1470	7937
1480	7888
1490	7838
1500	7789

DENSITY KG/M3	MACP KPA
1500	7789
1510	7740
1520	7690
1530	7641
1540	7592
1550	7542
1560	7493
1570	7444
1580	7394
1590	7345
1600	7296
1610	7246
1620	7197
1630	7147
1640	7098
1650	7049
1660	6999
1670	6950
1680	6901
1690	6851
1700	6802
1710	6753
1720	6703
1730	6654
1740	6605
1750	6555

LOST CIRCULATION COULD OCCUR AT LOWER PRESSURES.

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 16 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 11 Depth 503 Metres last 24 hr _____ Rotating hrs _____

Activity at report time: NIPPLE UP BOP's.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt _____ Vis _____ WL _____ Gels _____ Solids _____ % PV _____ YP _____ pH _____

Oil _____ % Sand _____ % Cake _____ PPMCL _____ PPMCa _____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
				203		152						

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSES

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service		
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on: Cement	4.00	
15. Nipple Up & Test BOPS	20.00	
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$24,140
CUMMULATIVE	$533,143

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 16 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: WAIT ON CEMENT.(CLEAN MUD TANKS.)
(SLACK OFF ON WEIGHT. CUT CASING ,REMOVE PIPE RACKS AND CATWALK.
BREAK DOWN DEVERTER AND RELATED EQUIPMENT. INSTALLED 346mm x 339.7mm
21000kPa CASING HEAD WITH 52.4mm 35000kPa SOUR TRIM VALVES.
PRESSURE TEST WELD TO 7000kPa. INSTALL CLASS IV 279mm BOP STACK, WITH
BLEED OFF SPOOLS. INSTALL KILL LINES, HCR LINES. MODIFY HCR SWEEP LINE.
CHANGE OUT 88.9mm RAMS TO 114mm RAMS. RESTALL CATWALK AND TIE IN
MANIFOLD .)
CHECK ALL VALVE AND SKIMMERS ON MUD TANK. BYPASS THE MUD TANK WITH
WATER. CIRCULATE INVERT AT TANK FARM.

QUESTION: ARE THESE THE RIGHT CO-ORDINATES FOR WELL?

WANT LIST:

WEATHER: BLOWING SNOW -13 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 15 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 10 Depth 503 Metres last 24 hr ____ Rotating hrs ____

Activity at report time WAIT ON CEMENT.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1175 Vis 50 WL 8 Gels 3 Solids 0.115 % PV 22 YP 7.7 pH 8

Oil 0.002 % Sand 0.02 % Cake 1.5 PPMCL 100 PPMCa 40

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM. m DRLD	Hrs TODAY	CUM. Hrs	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
2B	444.5	X33	FP684	0	140	503	140	208	20.00	32.50	6.40	4	4	1

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
2B	19.1	19.1	22.2	203	260	152	3	31	40			12500

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

DESCO -3
LIGNITE-3

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	311		0.40	
1-BIT SUB	200		0.84	
4-DRILL COLLARS	202		36.78	
1-XO	160		0.66	
16-DC	165		153.17	
32-DRILL PIPE	114		308.42	
KELLY			4.73	

COSTS

DAILY	$135,881
CUMMULATIVE	$509,003

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	8.75	
3. Rig Service	0.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud	3.50	
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement	7.50	
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on Cement	2.00	
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP	0.75	
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	0.75	
TOTAL	24.00	

PARA-D-1.XLS

FEB-16-1999 03:30 PM

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 15 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: RUN IN HOLE. CLEAN 401m TO BOTTOM.
CIRCULATE AND CONDITION HOLE.
PERFORM WIPER TRIP. TIGHT 383m TO 231m.
CIRCULATE AND CONDITION HOLE.
TRIP OUT OF HOLE AND LAY DOWN 200mm DRILL COLLARS.
HELD SAFETY MEETING WITH WEATHERFORD TONG HAND AND RIG UP EQUIPMENT.
RUN 39 JOINTS, 503.86m, 81.1kg/m, K-55, LT&C, ERW, 8rd, NEW CASING.
LANDED @ 503m.
CIRCULATE AND CONDITION HOLE.
HELD SAFETY MEETING WITH NOWSCO.
RIG UP CEMENTERS.
PREFLUSH 4m3 H2O + 2m3 SCAVANGER.
CEMENT: 56T, 12.4m3 0:1:0 "G" +1% CaCl2. 1901kg/m3
DROP PLUG AND DISPLACE WITH 39.5m3 H2O.
STAGED RETURNS. BUMP PLUG @ 21:57 Hrs 99 02 15
GOOD RETURNS THROUGHOUT. (5m3 RETURNS.)
WAIT ON CEMENT.

WANT LIST:

WEATHER: CLEAR 12 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

FEB-16-1999 03:29 PM P.01

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 14 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 9 Depth 503 Metres last 24 hr 140 Rotating hrs 20

Activity at report time: WIPER TRIP.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1175 Vis 50 WL 8 Gels 3 Solids 0.115 % PV 22 YP 7.7 pH 8

Oil 0.002 % Sand 0.02 % Cake 1.5 PPMCL 100 PPMCa 40

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
2B	444.5	X33	FP864	6 - 12	140	503	140	208	20.00	32.50	6.40			

CIRCULATION RECORD

BIT NO.	JETS - mm			PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
	1	2	3									
2B	19.1	19.1	22.2	203	200	152	3	31	46			12500

DEVIATION SURVEYS

1/4	° at	380 m	°	at	m
3/4	° at	430 m	°	at	m
	° at	m	°	at	m
	° at	m	°	at	m

MUD & CHEMICALS ADDED

GEL-13

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	311		0.40	
1-BIT SUB	200		0.94	
4-DRILL COLLARS	202		36.78	
1-XO	160		0.66	
18-DC	165		153.17	
32-DRILL PIPE	114		306.42	
KELLY			4.73	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	2.50	
3. Rig Service	0.50	
4. Deviation Surveys	0.50	
5. Ream & Cond. Hole	20.00	
6. Mix & Cond. Mud	0.50	
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOP'S		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$25,340
CUMMULATIVE	$373,322

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 14 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: REAM OUT 311mm HOLE TO 444.5mm.
SURVEY AND REAM TO A TOTAL DEPTH OF 503m
CIRCULATE HOLE CLEAN.
PERFORM WIPER TRIP. (TIGHT FROM 247m TO 185m.)

WANT LIST:

WEATHER: CLEAR -5 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)
HAULED IN 39 JOINTS OF 177.8 mm CASING FROM BASE CAMP VIA
STAN DEAN & SONS LTD.

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 13 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 8 Depth 501 Metres last 24 hr 131 Rotating hrs 19

Activity at report time OPEN HOLE TO 444.5mm

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1170 Vis 47 WL 8.5 Gels 3 Solids 0.11 % PV 15 YP 5.8 pH 8

Oil 0.002 % Sand 0.02 % Cake 1.5 PPMCL 200 PPMCa 40

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
1B	444.5	S21GT	555SC	6-10	140	295	63	295	6.00	19.75	14.94	3	5	I
2B	444.5	X33	FP684	6-10	140		68		12.50		5.44			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
2A	19.1	19.1	19.1	203	260	152	3	31	40			12500
2B	19.1	19.1	22.2	203	260	152	3	31	40			11500

DEVIATION SURVEYS

1/2 ° at 316 m ° at m

° at m ° at m

° at m ° at m

° at m ° at m

MUD & CHEMICALS ADDED

GEL-30

LIGNITE-3

DRISPAC-1

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	311		0.40	
1-BIT SUB	200		0.84	
4-DRILL COLLARS	202		36.78	
1-XO	160		0.66	
16-DC	165		153.17	
17-DRILL PIPE	114		162.63	
KELLY			8.82	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	3.50	
3. Rig Service	0.75	
4. Deviation Surveys	0.25	
5. Ream & Cond. Hole	18.50	
6. Mix & Cond. Mud	0.25	
7. Circulation (C.T.H.)	0.75	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$35,354
CUMMULATIVE	$347,982

SUPERVISOR D.McCULLOCH

PARA-D~1.XLS

FEB-14-1999 03:00 PM

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 13 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: OPEN HOLE TO 444.5mm.
CIRCULATE BOTTOMS UP.
TRIP OUT OF HOLE FOR BIT CHANGE.
CLEAN 280m TO 295m.
OPEN HOLE TO 444.5mm TO 363m.

OPERATION @ 08: 00 -

WANT LIST:

WEATHER: OVERCAST -13 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 12 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 7 Depth 503 Metres last 24 hr 9 Rotating hrs 16.5

Activity at report time OPEN HOLE TO 444.5mm

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1150 Vis 41 WL 10 Gels 2.5 Solids 0.1 % PV 16 YP 3.8 pH 8

Oil 0.002 % Sand 0.01 % Cake 1.5 PPMCL 350 PPMCa 50

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
2A	311	V. L-127XG	1372226	5/6	180	503	9	220	9.00	32.50	6.76	5		I
1B	444.5	S21GT	565SC	3/6	160		232		13.75		16.87			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
2A	15.9	15.9	15.9	203	200	152	2.22	41	60			6700
1B	19.1	19.1	19.1	203	200	152	3	31	40			11500

DEVIATION SURVEYS

1/4 °	at 95 m	°	at	m	
1/4 °	at 153 m	°	at	m	
1/8 °	at 211 m	°	at	m	
°	at m	°	at	m	

MUD & CHEMICALS ADDED

GEL-27
SAWDUST-10
MILCLEAN-1

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	311		0.40	
1-BIT SUB	200		0.84	
4-DRILL COLLARS	202		36.78	
1-XO	160		0.68	
16-DC	165		153.17	
3 DRILL PIPE	114		28.02	
KELLY			12.90	

COSTS

DAILY	$38,790
CUMMULATIVE	$312,628

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	1.75	
2. Trips	6.50	
3. Rig Service	0.75	
4. Deviation Surveys	0.75	
5. Resrv & Cond. Hole	13.75	
6. Rm & Cond. Mud		
7. Circulation	0.50	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 12 24:00
Yr Mon Day Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: PILOT AND SURVEY 311mm HOLE.
TRIP OUT OF HOLE , LAY DOWN PIPE AND COLLARS. (TIGHT HOLE 377m-256m)
MAKE UP BHA AND OPEN HOLE TO 444.5mm.
DRILL AND SURVEY AHEAD.

OPERATION @ 08: 00 -

WANT LIST:

WEATHER: CLEAR -17 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 11 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 6 Depth 492 Metres last 24 hr 144 Rotating hrs 22.25

Activity at report time DRILL 311mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1150 Vis 41 WL 10 Gels 2.5 Solids 0.1 % PV 16 YP 3.8 pH 8

Oil 0.002 % Sand 0.01 % Cake 1.5 PPMCl 350 PPMCa 50

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	C
2A	311	V. L-127XG	1372228	5 - 7	180		144	211	22.25	30.75	6.86			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
2A	15.9	15.9	15.9	203	100	152	2.22	41	50			6700
				203	100	152						

DEVIATION SURVEYS

1	°	at	373 m	7/8	°	at	488 m
1/4	°	at	401 m		°	at	m
1/4	°	at	430 m		°	at	m
1	°	at	460 m		°	at	m

MUD & CHEMICALS ADDED

GEL-58

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	311		0.35	
1-BIT SUB	200		1.04	
4-DRILL COLLARS	202		38.78	
1-XO	160		0.68	
10-DC	165		95.75	
36 DRILL PIPE	114		344.75	
KELLY			12.90	

COSTS

DAILY	$27,485
CUMMULATIVE	$273,838

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	22.25	
2. Trips		
3. Rig Service	0.75	
4. Deviation Surveys	1.00	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

PARA-D-1.XLS

FEB-12-1999 03:09 PM

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 11 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: PILOT AND SURVEY 311mm HOLE.

OPERATION @ 08: 00 -

WANT LIST:

WEATHER: BLOWING SNOW -22C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)
HAULED IN 503m 339.7mm CASING.

FEB-12-1999 03:10 PM

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 10 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 5 Depth 348 Metres last 24 hr 134 Rotating hrs 18.25

Activity at report time DRILL 311mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1135 Vis 41 WL 11 Gels 2.5 Solids 0.1 % PV 15 YP 4.3 pH 8

Oil 0.002 % Sand % Cake 1.5 PPMCL 280 PPMCa 50

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
1ART	311	SI FDSG+	LD9749	6-8	180	281	67	281	10.25	25.00	11.24	6	4	1
2A	311	V. L-127XG	137228	6-10	180		67		8.50		7.88			

CIRCULATION RECORD

BIT NO.	JETS mm 1	2	3	PUMP STROKE	RPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
1ART	15.9	15.9	15.9	203	100	152	2.22	41	50			6500
				203	100	152						

DEVIATION SURVEYS

3/4 °	at	228 m	3/4 °	at	343 m
3/4 °	at	258 m	°	at	m
1/2 °	at	288 m	°	at	m
7/8 °	at	316 m	°	at	m

MUD & CHEMICALS ADDED

DESCO-2
GEL-38

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	311		0.35	
1-BIT SUB	200		1.04	
4-DRILL COLLARS	202		36.78	
1-XO	160		0.66	
10-DC	185		85.75	
11 DRILL PIPE	114		201.34	
KELLY			12.90	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	18.25	
2. Trips	2.50	
3. Rig Service	0.75	
4. Deviation Surveys	1.25	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud	0.25	
7. Circulation (C.T.H.)	1.00	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings		
TOTAL	24.00	

COSTS

DAILY	$40,054
CUMMULATIVE	$248,353

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 10 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: PILOT AND SURVEY 311mm HOLE.
TRIP OUT OF HOLE FOR BIT CHANGE.
MAKE UP AND RUN BHA INTO HOLE.
CLEAN OUT BRIDGES 205m TO BOTTOM.
PILOT AND SURVEY 311mm HOLE.

OPERATION @ 08: 00 -

WANT LIST:

WEATHER: CLEAR -28 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 09 24:00
Yr - Mon Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 4 Depth 214 Metres last 24 hr 214 Rotating hrs 15

Activity at report time DRILL 311mm HOLE.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1150 Vis 40 WL 12 Gels 2 Solids % PV 14 YP 5.3 pH 9

Oil 0.002 % Sand % Cake 1.5 PPMCL 80 PPMCa

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
1ART	311	SI FDSS+	LD9749		180		214		15.25		14.00			

CIRCULATION RECORD

BIT NO.	JETS mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
1ART	15.9	15.9	15.9	203	80	152	1.75	33	39			4500
				203	80	152						

DEVIATION SURVEYS

1/8 °	at	40 m	1/4 °	at	153 m
1/4 °	at	68 m	1/4 °	at	182 m
7/8 °	at	95 m	1 °	at	211 m
1/4 °	at	125 m	°	at	m

MUD & CHEMICALS ADDED

SODA ASH-1
GEL-S6
DEFOMER-2

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-DRILL BIT	311		0.35	
1-BIT SUB	200		1.04	
4-DRILL COLLARS	202		36.78	
1-XO	160		0.88	
10-DC	165		95.75	
7- DRILL PIPE	114		88.57	
HELLY			12.85	

COSTS

DAILY	$42,418
CUMMULATIVE	$208,289

SUPERVISOR D.McCULLOCH

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	15.25	
2. Trips		
3. Rig Service	0.50	
4. Deviation Surveys	1.75	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOP'S	4.00	
16. Drilling Out		
17. Lost Circ.(Mud Mngt)	0.50	
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out	1.50	
21. Safety Meetings	0.50	
TOTAL	24.00	

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 09 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: NIPPLE UP DEVERTER AND MIX MUD.
RIG TO SPUD.
HELD DEVERTER DRILL.
SPUD IN @ 99 02 09 @ 05:30 Hrs.
DRILL AND SURVEY 311mm HOLE.
CLEAN MUD RINGS FROM FLOW LINE.

OPERATION @ 08: 00 -

WANT LIST:

WEATHER: CLEAR -22 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-D-2.XLS

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 08 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Day 3 Depth 0 Metres last 24 hr _____ Rotating hrs _____

Activity at report time: RIGGING UP.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1000 Vis 40 WL _____ Gels _____ Solids _____ % PV _____ YP _____ pH _____

Oil _____ % Sand _____ % Cake _____ PPMCL _____ PPMCa _____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service		
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out	24.00	
TOTAL	24.00	

COSTS

DAILY	$824,200
CUMMULATIVE	$163,881

SUPERVISOR D.McCULLOCH

PARA-D-1.XLS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 08 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

OPERATIONS DETAIL: RIG UP. RAISE DERRICK.
RIG UP FLOOR.
CUT CONDUCTOR BARREL AND WELD ON DEVERTER FLANGE.
INSTALL DEVERTER. BUILD FLOW NIPPLE. MAKE STUDS FOR FLOW NIPPLE.
NIPPLE UP KILL LINE VALVES,HCR AND DEVERTER LINE.
FUNCTION TEST ANNULAR AND HCR.
MIX SPUD MUD.

(TRANSFER INVERT TANKS AND FLUIDS FROM F-36.)

PARAMOUNT ET AL LIARD A-01
PRECISION DRILLING # 373
WELL LICENCE # EL 381
WATER PERMIT # N3L1-1732
GROUND ELEVATION - 517.4m - 0.25m CUT = 517.15m
K.B.- 5.5m
K.B. ELEVATION -522.65m

OPERATION @ 08: 00 - DRILL 311mm HOLE.

WANT LIST:

WEATHER: CLEAR -24 C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 07 24:00
Yr Mon Day Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00 123 15

Day 2 Depth 0 Metres last 24 hr _____ Rotating hrs _____

Activity at report time RIGGING UP.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt _____ Vis _____ WL _____ Gels _____ Solids _____ % PV _____ YP _____ pH _____

Oil _____ % Sand _____ % Cake _____ FPMCL _____ PPMCa _____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	KER NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	Dull Cond

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

° at	m	° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service		
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP		
19. Plug & Abandon		
20. Rig up - Tear out	24.00	
TOTAL	24.00	

COSTS

DAILY	$83,441
CUMMULATIVE	$101,461

SUPERVISOR D.McCULLOCH

PARA D.XLS

0000 SAVIN COURIER250

DEC. 3 '94 11:49

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 07 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00 123 15

OPERATIONS DETAIL: MOVE SUBSTUCTURE.
RIG UP RIG.
MOVE 3 5mm PIPE AND MUD SUPPLIES
TRUCKS RELEASED @ 17:00 Hrs.
RIG UP AND PREPARE TO RAISE DERRICK.

OPERATION @ 08: 00 - RIGGING UP.

WANT LIST:

WEATHER: WIND -18C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

FOR 24 HR PERIOD ENDING 99 02 06 24:00
Yr - Mth - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00 123 15

Day 1 Depth 0 Metres last 24 hr _____ Rotating hrs

Activity at report time RIGGING OUT.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt _____ Vis _____ WL _____ Gels _____ Solids _____ % PV _____ YP _____ pH _____

Oil _____ % Sand _____ % Cake _____ PPMCT. _____ PPMCu _____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	JET WT	JET RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Drill Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

°	at	m	°	at	m
°	at	m	°	at	m
°	at	m	°	at	m
°	at	m	°	at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service		
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		

COSTS

DAILY $18,020

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 06 24:00
Yr - Mon - Day - Time

WELL NAME PARAMOUNT ET AL LIARD LOCATION A-01 60 00 123 15

OPERATIONS DETAIL: RIG OUT AND LAY DOWN DERRICK.
CLEAN MATTING. SHOVEL SHALE FROM MUD TANKS.
RIG OUT CAMP AND MOVE TO NEW LOCATION WITH MPO.
RIG OUT RIG AND MOVE TO LOCATION.
(HILLS VERY SHARP CAUSING PROBLEMS)

OPERATION @ 08: 00 - HAUL IN SUBSTRUCTURE

WANT LIST:

WEATHER: LITE OVERCAST -17C ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

DAILY COMPLETION / WORKOVER REPORT

WELL NAME: PARA et al FORT LIARD | DATE: 03-22-00 | REPORT NO: 1

LOCATION: A - 01 | CONTRACTOR: BAKER ATLAS

TD (mKB): 2046.0 | PBTD (mKB): 2046 | Csg Size (mm): 177.8 | AFE # 00N925078

FORMATION: MATTSON SAND | Perforations: 1875-1882/1839.5-1843

PURPOSE: SUSPEND WELL .

WELLHEAD PRESSURES @08:00 hrs: SITP: 0 kPa | SICP: 0 kPa

CURRENT OPERATIONS @08:00 hrs: WELL SUSPENDED .

FROM	TO	PREVIOUS DAYS OPERATIONS
		SITP: 5800 kPa SICP: 0 kPa
		RIG IN SLICKLINE TRUCK WITH PICKER TRUCK , RAN A 2.34 " GAUGE RING & TAGGED THE
		NIPPLE @ 1772.0m. CASING FLANGE .
		RAN A 2.28mm. GAUGE RING TO 1775.0m. CASING FLANGE .
		RAN & SET A 58mm. " FSG " PLUG IN " F " NIPPLE @ 1772.0m. CASING FLANGE .
		BLEED OFF TBG. - PLUG LEAKING , PULL PRONG & PULL PLUG , RE-DRESS PLUG & RE-RUN
		BLEED TBG. DOWN TO 0 KPA. PLUG HOLDING GOOD , RIGGED OUT & MOVED OFF LOC .

DAILY COST SUMMARY

Item	Amount	Item	Amount		Item	Amount
RIG					DAILY COST	$5,855.00
SUPERVISION					PREVIOUS	
RENTALS					COST TO DATE	$5,855.00
SLICKLINE	$5,855.00				AFE AMOUNT	

RIG HOURS	MOBILE 403-861-3845	PREPARED BY AL IRONSIDE .
CUM RIG HRS.	AREA FT. LIARD , N.W.T.	RECEIVED BY WAYNE TOMM .

LOAD FLUID

Total Load Fluid:	Daily Recovery:	Recovered to Date:	Load to Recover:
Oil: ____ m^3	Oil: ____ m^3	Oil: ____ m^3	Oil: ____
Water: ____ m^3	Water: ____ m^3	Water: ____ m^3	Water: ____
			('+' new fluid)

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 00/03/13

Well: Para et al Fort Liard A-01 Day: 33 Page: 1

Purpose of Job:	Completion			Formation:	Mattson	
Current Operation:	Recording Build Up pressures			Perfs:	1875.0	to 1882.0
Tubing pressure:@06:00	4070	Casing	TSTM	Perfs:	1839.0	to 1840.5
Date of Operations:	00/03/12	Weather:	Clear -13C	Perfs:	1832.0	to 1834.5
				Perfs:	1786.0	to 1791.0
		Tbg Bttm:	1782.00 m KB	PBTD:	1821.50 m KB	

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

385kPa build-up in last 24 hours

Services	Cost	Services	Cost
Supervision	835		
Norwood	2390		
Daily	$3,225	Cumulative Amount:	

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $794,635

$797,860 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 00/03/12

Well: Para et al Fort Liard A-01 Day: 32 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@06:0(3655 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 00/03/11 Weather: Clear -18C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

415kPa build-up in last 24 hours

Services	Cost	Services	Cost
Supervision	835		
Norwood	2390		

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 00/03/11

Well: Para et al Fort Liard A-01 Day: 31 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@06:0(3240 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 00/03/10 Weather: Clear -20C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

650kPa build-up in last 24 hours

Services	Cost	Services	Cost
Supervision	835		
Norwood	2390		
Daily	$3,225	Cumulative Amount:	$791,410

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $788,185

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 00/03/10

Well: Para et al Fort Liard A-01 Day: 30 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@06:0(2590 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 00/03/09 Weather: Cloudy –17C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

1460kPa build-up in last 24 hours

See Norwood print outs for hourly results since coiled tubing cleanout.

Services	Cost	Services	Cost
Supervision	835		
Norwood	2390		
Daily	$3,225	Cumulative Amount:	$791,410

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $788,185

AFE Amt: AFE # : 009N925078

PAPAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 00/03/09

Well: Para et al Fort Liard A-01 Day: 29 Page: 1

Purpose of Job:	Completion	Formation:	Mattson		
Current Operation:	Recording Build Up pressures	Perfs:	1875.0	to	1882.0
Tubing pressure:@08:(	1130 Casing TSTM	Perfs:	1839.0	to	1840.5
Date of Operations:	00/03/08 Weather: Cloudy -20C	Perfs:	1832.0	to	1834.5
		Perfs:	1786.0	to	1791.0
	Tbg Bttm: 1782.00 m KB	PBTD:	1821.50 m KB		

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

(13:00 -19:00) Trican Coiled Tubing unit and N2 unit arrive and rig up to clean out tubing. Pre job safety meeting, pressure test surface lines to 35MPa, coil and wellhead to 21MPa. Coiled tubing started in hole and N2 brought on line at 15SCM, fluid to surface with coiled tubing at 1120m. Traces of sediment in fluid samples taken by Norwood testers. Flare stack wasn't lit could not detect if burnable gas to surface. Tag bottom at 1820m with N2 at 25SCM. Obtain samples from bottom, broken frac fluid. Total fluids recovered 4.35m^3. POH with coiled tubing, turn off N2 at 1000m. Rig out coiled tubing and nitrogen units, release equipment. Shut in well.

Norwood to monitor build up pressures

Pressure to 1130kPa overnight.

Services	Cost	Services	Cost
Supervision	835		
Norwood	2390		
Trican CTU	36550		
Daily	$39,775	Cumulative Amount:	$788,185

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $748,410

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 08/03/07

Well: Para et al Fort Liard A-01 Day: 28 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(1770 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 00/03/07 Weather: Cloudy -12C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

300 kPa build up over last 24 hours

Trican coiled tubing and nitrogen should be here tomorrow afternoon to clean out well.

Services	Cost	Services	Cost
Supervision	835		
Norwood	66920		

Daily $67,755 Cumulative Amount: $748,410

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New cut (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $680,655

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 00/03/07

Well: Para et al Fort Liard A-01 Day: 27 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(1470 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 00/03/06 Weather: Snow -16C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

((0:00 - 23:59) Norwood testers monitoring pressure build-ups.

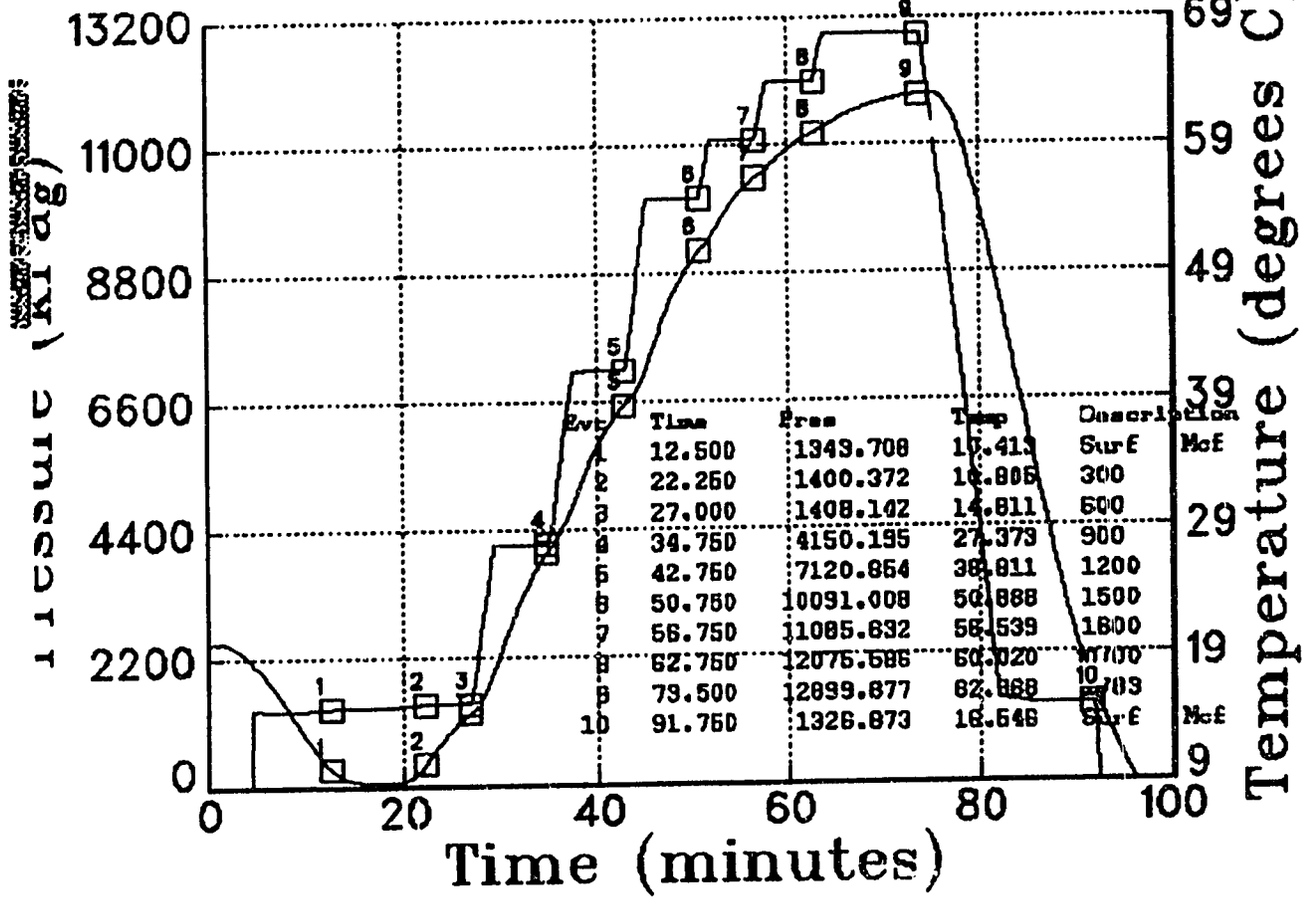
220 kPa build up over last 24 hours

Baker slickline runs sample catcher and gradient
Fluid level at 600m
BHP at 1783m = 12899kPa HP of 1020kg/m^3 fluid from 1183 - 1783m = 11,840kPa
Sample obtained from 1783m is broken frac gel and water

Services	Cost	Services	Cost
Supervision	835		
Slickline	1600		
Picker	1000		

Paramount

A-01



ZIPGRAPH 3.1b6 for Z.I. Probes, Edmonton Mar. 8, 2000 20:28:07

Z-I PROBES WELL DATA- STATIC GRADIENT

COMPANY: Paramount
REP: Gerry Friend
PHONE: 403-819-3581

ELEVATION: KB:522.65 m
CF:517.15 m
KB-CF: 5.5 m

WELL NAME: Para et al Ft. Liard
LOCATION: A-01
FIELD/POOL: Ft. Liard / Mattson

PRODUCING INT: 1780.5 mCF
: 1785.5 mCF
MIDPOINT: 1783.0 mCF

SERVICE CO: Baker Atlas Slickline
REP: Dale Goertzen
DISTRICT: Grande Prairie, AB
PHONE: 532-5177 FX 538-9188
CELL: 780-831-0908
TYPE OF TEST: Static Gradient
STATUS: Gas
H2S : 0.0%
RUN DEPTH: 1783 mCF
TOP PROBE: T-3
BOT PROBE: T-5

PRODUCING THRU: 73.0 mmTUB
: 177.8 mmCAS

START DATE: 00-03-06 @ 18:30 HRS
TUB PRES= 1.33mpa @ 18:31 HRS
CAS PRES= 0.00mpa @ 18:31 HRS
FINISH DATE: 00-03-06 @ 19:59 HRS
TUB PRES= 1.35mpa @ 19:53 HRS
CAS PRES= 0.00mpa @ 19:53 HRS
ON BOT: 00-03-06 @ 19:29 HRS
OFF BOT: 00-03-06 @ 19:39 HRS

Static Gradient Information

mCF	TIME	DEADWEIGHT		REMARKS
SURF	18:30 - 18:35	TUBING	1.33 mpa	
300	18:39 - 18:44	CASING	0.00 mpa	
600	18:47 - 18:52			
900	18:55 - 19:00			
1200	19:03 - 19:08			
1500	19:11 - 19:16			
1600	19:17 - 19:22			
1700	19:23 - 19:28			
1783	19:29 - 19:39			
SURF	19:52 - 19:57	TUBING	1.35 mpa	
		CASING	0.00 mpa	

REMARKS: Probe readings set @ 15 second samples
: Send Results to Wayne Tomm

PROBE INFORMATION: T-3 DATA POINTS: AMP/HRS.:
: T-5 DATA POINTS: AMP/HRS.:

TICKET#: 00858

Fluid Level @ Approx. 600 mCF

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 00/03/06

Well: Para et al Fort Liard A-01 Day: 26 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(1250 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 00/03/05 Weather: Snow, -8C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

360 kPa build up over last 24 hours

17.0 kPa per hour over last 48 hours

Services	Cost	Services	Cost
Supervision	835		
Daily	$835	Cumulative Amount:	

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $677,220

$678,055 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 3/5/00

Well: Para et al Fort Liard A-01 Day: 26 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1375.0 to 1882.0

Tubing pressure:@08:(890 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 3/4/00 Weather: Clear 0C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

455 kPa build up over last 24 hours

18.5 kPa per hour over last 48 hours

Services	Cost	Services	Cost
Supervision	835		-
Daily	$835	Cumulative Amount:	$678,055

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $677,220

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 3/4/00

Well: Para et al Fort Liard A-01 Day: 25 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(435 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 3/3/00 Weather: Clear 0C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

Well was flowed through a 6.35mm adjustable choke for 15 minutes. Pressure bled off to a slight blow within 15 minutes. Well was shut in at 11:30am and build up pressures monitored by Norwood Testers.

435kPa on tubing at 06:00am

Services	Cost	Services	Cost
Supervision	835		

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $676,385

Daily $835 Cumulative Amount: $677,220 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 3/3/00

Well: Para et al Fort Liard A-01 Day: 24 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(3470 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 3/2/00 Weather: Clear -4C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

450 kPa pressure build up over 24 hours.

20 kPa per hour over the last 48 hours

Services	Cost	Services	Cost
Supervision	835		
Daily	$835	Cumulative Amount:	$676,385

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $675,550

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 3/2/00

Well: Para et al Fort Liard A-01 Day: 23 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(3020 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 3/1/00 Weather: Clear -4C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

770 kPa pressure build up over 24 hours.

20-30 kPa per hour over the last 48 hours

Services	Cost	Services	Cost
Supervision	835		
Daily	$835	Cumulative Amount:	$675,550

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #.

Previous cum cost: $674,715

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 3/1/00

Well: Para et al Fort Liard A-01 Day: 22 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(2450 Casing TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 2/29/00 Weather: Clear -9C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

750 kPa pressure build up over 24 hours.

Services	Cost	Services	Cost
Supervision	835		
Grizzly	250		
Compass	2800		
Daily	$3,885	Cumulative Amount:	$674,715

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $670,830

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/29/00

Well: Para et al Fort Liard A-01 Day: 21 Page: 1

Purpose of Job:	Completion	Formation:	Mattson		
Current Operation:	Recording Build Up pressures	Perfs:	1875.0	to	1882.0
Tubing pressure:@08:(	1740 Casing TSTM	Perfs:	1839.0	to	1840.5
Date of Operations:	2/28/00 Weather: Clear -14C	Perfs:	1832.0	to	1834.5
		Perfs:	1786.0	to	1791.0
	Tbg Bttm: 1782.00 m KB	PBTD:	1821.50 m KB		

(00:00 - 23:59) Norwood testers monitoring pressure build-ups.

900 kPa pressure build up over 24 hours.

Services	Cost	Services	Cost
Supervision	835		
Daily	$835	Cumulative Amount:	

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $669,995

$670,830 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/28/00

Well: Para et al Fort Liard A-01 Day: 20 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(850 Casing Pressure: TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 2/27/00 Weather: Clear -18C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(08:00 - 13:00) Norwood recording wellhead pressures Tubing bleeds down to 15630kPa at 13:00 at which time it is bled off through test unit to flare stack . No burnable gas.

(13:00 - 20:00) Rig in coiled tubing and nitrogen units. Pressure test lines to Norwood manifold to 21MPa. Held OK Start N2 and start in hole with coiled tubing. Gelled frac fluid to surface at 1440m, sporadic gelled frac fluid to surface to 1823m. No sand recovered. POH with coiled tubing N2 shut off at 1000m. No burnable gas returned to flare stack. Coiled tubing reaches surface, well bled off and shut in. Coiled tubing and nitrogen unit rig out. Norwood to monitor wellhead pressures. 4.3m^3 of gelled water recovered on cleanout. No sand.

Nowsco rep contacted about gelled frac fluid not being broke. Sending samples to Grand Prairie. Sample of gelled frac fluid from perf interval starting to break at 20:30.

Compass Transfer took 20m^3 from 400bbl tank with gelled water in it. Couldn't suck out bottom 7m^3. Loaded 4.3m^3 gelled frac fluid from Norwood pressure tank. Will transport to CCS Laglace for disposal.

Will have to get steam truck and breaker fluid for 7m^3 left in 400bbl sloped tank.

Services	Cost	Services	Cost
Compass	2570		
SanJel	39325		
Supervision	835		

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: Gerry Friend Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $627,265

Daily $42,730 Cumulative Amount: $669,995 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/27/00

Well: Para et al Fort Liard A-01 Day: 19 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures

Tubing pressure:@08:(16475 Casing Pressure: 1800

Date of Operations: 2/26/00 Weather: Clear -11C

Perfs: 1875.0 to 1882.0
Perfs: 1839.0 to 1840.5
Perfs: 1832.0 to 1834.5
Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00-09:00) Norwood testers monitoring wellhead pressures. Tubing & Casing - TSTM

(09:00 - 13:00) Nowsco/Fracmaster arrives and rigs up to do a Nitrified Crosslinked Frac. Equipment was rigged up (treesaver, backpressure pumper, frac equip.), safety meeting held, equipment tested to 65MPa. 13MPa pressure was held on annulus and frac began with a pad of 23.0m^3, stage #1 @2.8m^3/min, sand at 50-800, volume 7.5m^3, Stage #2 @2.8m^3/min, sand at 800-1000, volume 2.0m^3, maximum pumping pressure of 60MPa reached, flush started w/3.4m^3 being pumped before shut down.
Working pressure 45-60.1MPa
5 tonne of sand used, aprox. 4.7 tonne into formation
Breakdown pressure 45.5MPa Maximum pumping pressure 60.1MPa
Estimated sand top 1805m
Instantaneous shut in pressure 36.7MPa 1 minute shut in pressure 33.2MPa
15 minute shut in pressure 30.0MPa

Frac equipment rigged out and released at 13:00

Norwood testers monitoring wellhead pressures

Midnight pressures Tubing 17200kPa Casing 1775kPa

Services	Cost	Services	Cost
Nowsco	120000		
D & G	3760		
Supervision	835		
R & D	6500		
Daily	$131,095	Cumulative Amount:	$627,265

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: M.S. EDWARDS Phone #: 818 -4490
G. Friend

Contractor: Cenalta 42 Phone #:

Previous cum cost: $496,170

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/26/00

Well: Para et al Fort Liard A-01 Day: 18 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(TSTM Casing Pressure: TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 2/25/00 Weather: Clear -11C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

(00:00 -23:50) Check pressures on wellhead. Tubing on vacuum and casing on vacuum. Norwood testers monitoring wellhead for buildup pressures.

Services	Cost	Services	Cost
Supervision	835		
Daily	$835	Cumulative Amount:	$496,170

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: M.S. EDWARDS Phone #: 818 -4490

G. Friend

Contractor: Cenalta 42 Phone #:

Previous cum cost: $495,335

AFE Amt: AFE # : 009N925078

FRAC TREATMENT REPORT

OWNER	Paramount Resources Ltd.
ADDRESS	#4000, 350-7th Avenue S.W.
CITY	Calgary, Alberta

	O.D.	WT.	Depth	Vol.	Mfrc.
Tubing	73.0	9.67	1782.0	5.38	72.9
Casing	177.8	34.23	1786.0	0.08	43.7
Total Volume				5.46	

Treatment Mode:	Tubing		
Packer Depth	1774.0 m	PBTD	1819.0 m
Formation Treated:	Mattson (Gas)		

PERFORATIONS	From	To	Zone Treated	SPM
INTERVALS	1786.0	1791.0	x	17

FLUSH FLUID DENSITY	720	kg/m³
ESTIMATED SAND TOP:	1805	Meters
FRACTURE GRADIENT:	27.6	kPa/m
BREAKDOWN PRESSURE:	45.6	MPa
Instantaneous Shut In Pressure:	39.7	MPa
ONE Minute Shut In Pressure:	33.2	MPa
15 Minute Shut In Pressure:	30.0	MPa

	MIN.	MAX.	AVE.	UNITS
PRESSURE	60.0	60.1	60.0	MPa
RATE	1.5	2.5	2.4	m3/min
KILOWATTS	1250	2805	2915	kW
AVAILABLE kw		3600	3	Units

NITROGEN RATE	277	m³/min
NITROGEN RATIO:	100-152	m³/m³
NITROGEN LOSSES & COOLDOWN:	749	m³
NITROGEN TOTAL USED:	4900	m³

SERVICE ORDER NO:	C-12512	DATE:	February 26, 2000
JOB TYPE:	Nitrified Crosslinked Frac		
WELL NAME AND NO.:	Paramount FL Lisrd		
LOCATION:	A-01		
FLUID TYPE:	Water	PROGRAM NO:	P83368-01

TREATING MATERIALS PREMIXED IN THE TANKS:

CHEMICAL	CONC.	UNITS
WG-15 Gellant	4.2	kg/m³
CC-2	1.0	L/m³
NE-116H	1.0	L/m³
CS-2	1.0	L/m³
BF-7L	4.0	L/m³

TREATING MATERIALS MIXED ON THE FLY:

High Perm CRB	0.03 kg/m³
XLW-24 Crosslinker	2.0 L/m³
Enzyme G Breaker	2.0 L/m³

BREAKER FOR TANK BOTTOMS: 1 L Breaker FLC

FRAC FLUID TEMPURATURE: 24.0 °C

PROPPANT DATA

PROPPANT AGENTS	PUMPED kgs	MESH	CONC. START kg/m³	CONC. END kg/m³	IN FORM. kgs	CONC.@ PERFS	TOTAL PROP (t) USED	TOTAL PROP (t) IN FORM.
Sand	5,000	20/40	33	620	4,700	000	6.0	4.7

CO_2 RATE:	n/a	m³/min	
CO_2 RATIO:	n/a	m³/m³	FLUID IN FORMATION
CO_2 COOLDOWN & LOSSES:	n/a	m³	
CO_2 TOTAL USED:	n/a	m³	31.6 m³

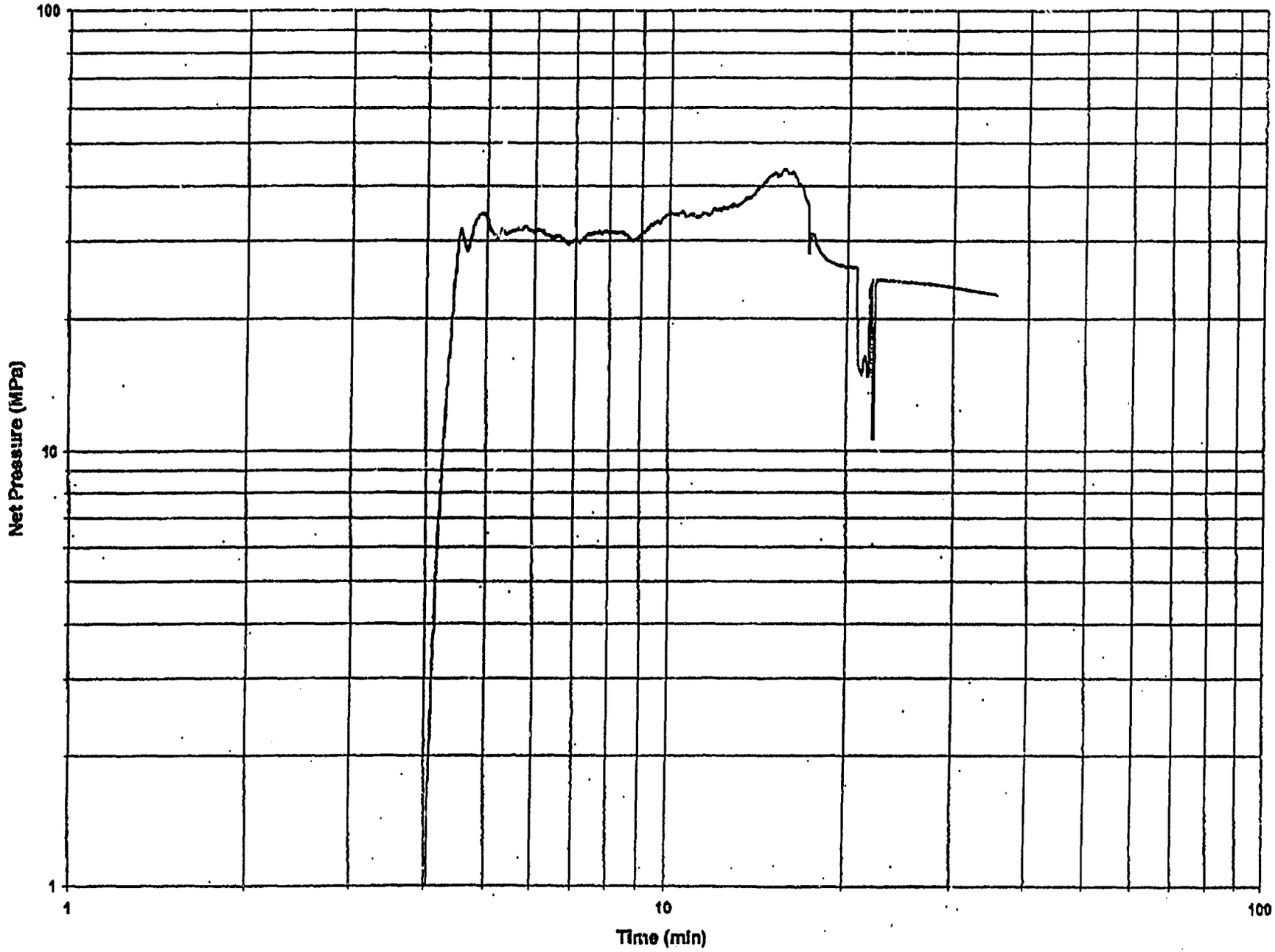
TIME	PRESS. MPa Tubing	PRESS. MPa Casing	STAGE VOLUMES m³ Cum. Fluid	Fluid	Slurry	RATE m³/min Blender	RATE m³/min Downhole	Blender Sand Conc.	Downhole Sand Conc.	REMARKS:
11:06:25	0.1	9.0				0-1.5	0-2.2			Start pumps, start hole fill.
11:09:30	45.5	13.5	4.4	4.4	4.4	1.5-2.8	2.2-4.0			Hole full, start pad.
11:16:40	64.1	12.9	22.0	18.6	18.6	2.8	4.0	50-600	33-507	Pad away, start proppant stage #1.
11:19:40	59.9	12.5	30.5	7.5	8.7	2.8	4.0	600-1000	507-620	Stage #1 away, start proppant stage #2.
11:20:45	59.0	12.3	32.5	2.0	2.7	2.8	4.0			Proppant away, start flush. (Base Gel)
11:22:00	64.1	12.1	35.9	3.4	3.4	2.8-0	4.0-0			Flush away, stop pumps

VOLUME PUMPED			35.9	m³	Pressure test surface lines to:	65.0	MPa	Annular relief valve:	21.0 MPa
VOLUME IN FORMATION			31.6	m³	Maximum treating pressure:	60.0	MPa	Hold annulus at:	16.0 MPa

FRACMASTER REPRESENTATIVE	CUSTOMER REPRESENTATIVE
Brad Bellak Tim Morin Perry Foreman	Gerry Friend

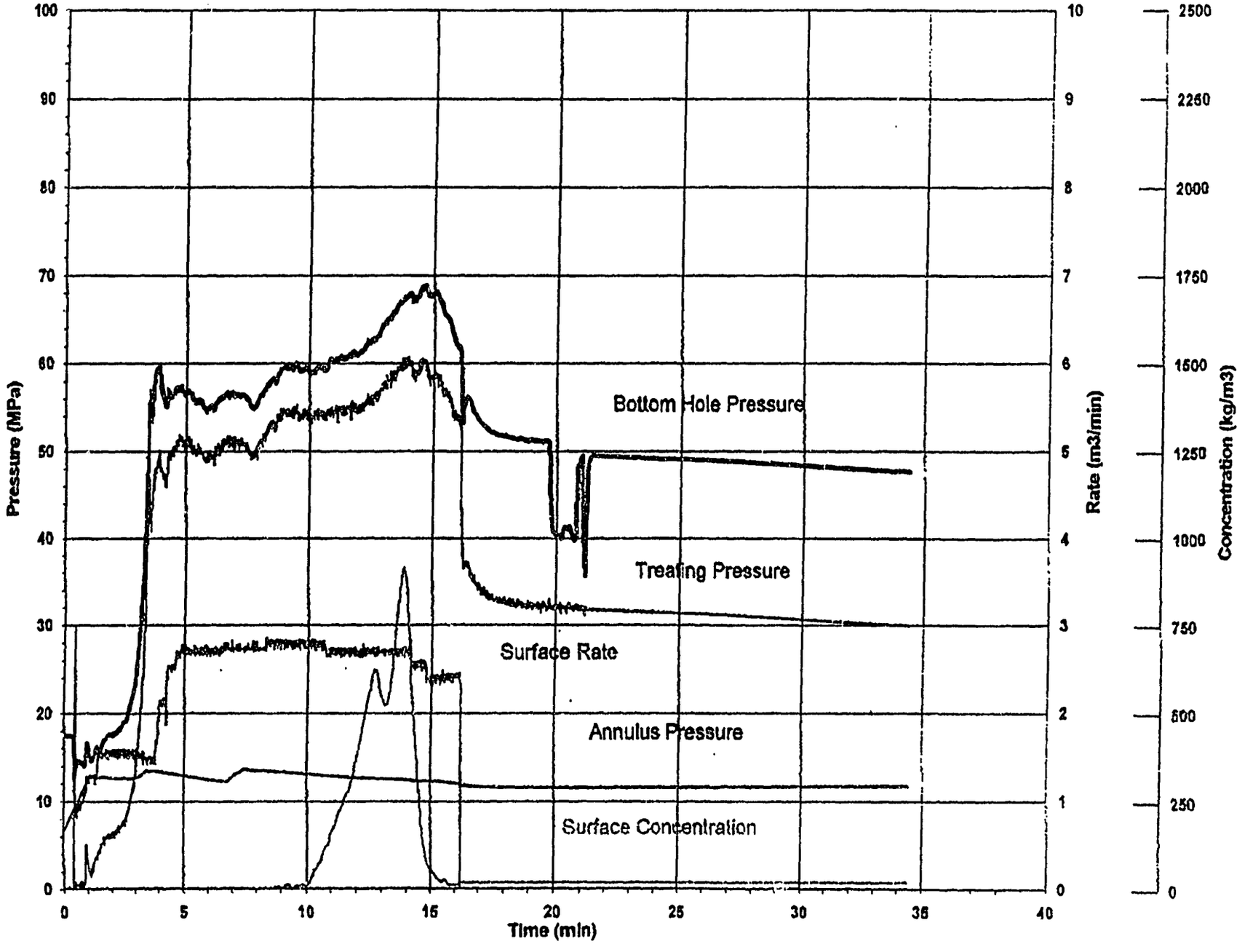
Paramount Resources Ltd.
A-01
Net Pressure Plot

FEB. 26/00 MATTSON "GAS"
NITRIFIED CROSSLINKED GELLED WATER FRAC



Paramount Resources Ltd.
A-01
Surface Conditions

FEB. 26/00 MATTSON "GAS"
NITRIFIED CROSSLINKED GELLED WATER FRAC



PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/25/00

Well: Para et al Fort Liard A-01 Day: 17 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Recording Build Up pressures Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(TSTM Casing Pressure: TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 2/24/00 Weather: Clear -11C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Btm: 1782.00 m KB PBTD: 1821.50 m KB

(08:00 -11:00) Check pressures on wellhead. TSTM on tubing and casing. RIH to swab, fluid not encountered. Pulled 2 dry swabs, tubing on vac.

Rig in slickline, recover drop bar and drop guns. Tagged guns at 1813m

Tear out rig to move.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl/Tower	555		
Safety Boss	785		
Baker Tools	2665		
Slickline	1600		
EWLU	2625		
Daily	$18,605	Cumulative Amount:	$497,335

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: M.S. EDWARDS Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $478,730

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/24/00

Well: Para et al Fort Liard A-01 Day: 16 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: SWAB AND WIRELINE Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(TSTM Casing Pressure: TSTM Perfs: 1839.0 to 1840.5

Date of Operations: 2/23/00 Weather: CLOUDY -7C Perfs: 1832.0 to 1834.5

Perfs: 1786.0 to 1791.0

Tbg Bttm: 1782.00 m KB PBTD: 1821.50 m KB

Operations:

(08:00 - 11:30) MAKE UP TUBING CONVEYED PERFORATOR RUN IN THE WELL. (
11:30 - 13:00) POSITION PERFORATOR GUN, LOG TO CONFIRM GUNS ON DEPTH AT 1786-1791M.
(13:00 - 15:00) NIPPLE DOWN BOP, INSTALL WELLHEAD, PRESSURE TEST SEALS ON TUBING HANGER AND TUBING HANGER RING SEAL TO 21,000MPA FOR 15 MINUTES, HELD OK
(15:00 - 15:30) PUT 1M3 3% KCL WATER INTO TUBING FOR CUSHION AND DROP THE BAR TO PERFORATE INTERVAL 1786-1791M WITH 127MM ERHSC, 17SPM 60 DEGREE PHASING, 36GRAM TUBING CONVEYED PERFORATING GUNS. SOUND OF BLAST RECORDED ON TAPE AND COULD BE HEARD BY EAR AT SURFACE.

NO IMMEDIATE PRESSURE INCREASE, WEAK BLOW THROW 1/2" NEEDLE VALVE, BUIL TO 80 KPA IN 15MIN, 100KPA IN 30, 110KPA IN 60 MINUTES.

(16:30 - 18:00) RIG UP TO AND SWAB, FLUID LEVEL AT 1485M, RECOVERED 1M^3 OF KCL, PULLED 1 DRY SWAB, TUBING ON VACUUM. RIG OUT SWAB AND SHUT IN WELL FOR NIGHT.

NORWOOD CHECKED WELL TILL MIDNIGHT, TUBING ON VACUUM.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Baker Tools	2665		
Slickline	1600		
EWLU	13695		

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

403

Report from: M.S. EDWARDS Phone #: 818 -4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $449,055

Daily $29,675 Cumulative Amount: $478,730 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/23/00

Well: Para et al Fort Liard A-01 Day: 15 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Pick up tubing conveyed perforator Perfs: 1875.0 to 1882.0

Tubing pressure:@08:(Casing Pressure: Perfs: 1839.0 to 1840.5

Date of Operations: 2/22/00 Weather: Light Snow -14.0 C Perfs: 1832.0 to 1834.5

Perfs: to

Tbg Bttm: m KB PBTD: 1821.50 m KB

Operations:

08:00 - 11:00 CHANGE OUT B.O.P. 11:00 - 15:00 NIPPLE UP & PRESSURE TEST B.O.P. 1400KPA LOW &21000KPA HI (UPPER & LOWER PIPE RAMS, BLIND RAMS, ,VALVES) 15 MIN. EACH. HYDRYL 1400 LOW , 7000 HI., FILL TUBING 15:00 - 18:30 PULL TUBING , LAY DOWN PERFORATING GUN.18:30 - 22:00 RUN BAKER BRIDGE PLUG SET @ 1827.0m PRESSURE TESTED BRIDGE PLUG 7000KPA FOR 15 MIN, RAN 5.5m CEMENT W/ DUMP BAILER ON TOP OF PLUG. PULL OUT WIRELINE LAY DOWN BAILER , SECURE WELL .

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Baker Tools	655		
Slickline	1600		
EWLU	2625		
FUEL	6283		
Daily	$22,878	Cumulative Amount:	

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

M.S (MO) EDWARDS 403 - 818 - 4490

Contractor: Cenalta 42 Phone #:

Previous cum cost: $404,472

$427,350 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/22/00

Well: Para et al Fort Liard A-01 Day: 14 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Swab

Tubing pressure:@08:(740 Casing Pressure: TSTM Perfs: 1875.0 to 1882.00

Date of Operations: 2/21/00 Weather: Clear -14C Perfs: 1839 to 1840.5

1832 1834.5

Tbg Bttm: 1819.81 m KB PBTD: 1866.00 m KB

Operations:

(08:00 - 19:00) Check pressures on wellhead: 720kPa on tubing, TSTM on casing. Bled gas off to flare stack, burnable gas was flared for aprox. 2 minutes. RIH with swab, tag fluid at 1000m. Pulled 3 swabs last one to confirm dry, recovered 2.55m^3 of BSW with traces of diesel(invert), salinity of 20000ppm, Ph 7. Wait for 2 hours pull a swab from 1815m with a recovery of 0.5m^3 of BSW, same properties as above. Pulled a total of 7 swabs today with a totaL recovery of 3.85m^3 of BSW, invert, and traces of gas for the day. Cum. total for this well: 29.01m^3

Stump tested blind rams, lower pipe rams, stabbing valve, and kill/return line valves to 1400kPa and 21,000kPa respectively on all units, Held for 15minutes on each unit. Attempt to pressure test upper rams, 52.4mm valve stuck in closed position, will change out in morning

Well shut in and secured. Norwood testers to monitor build up pressures overnight.

Compass Transfer loaded 12m^3 of produced fluids from Norwood pressure vessel and will haul it to LaGlace for disposal. He will load 16m^3 of dirty water at b-43-K/94-O-14 and haul it to WCT in Fort St. John. Dirty water is from ditches and cellar.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Baker Tools	655		
Slickline			
EWLU	5250		
Compass	2600		
Const.	660		
Trucking	825		
Daily	$21,705	Cumulative Amount:	$426,177

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $404,472

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/21/00

Well: Para et al Fort Liard A-01 Day: 13 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Swabbing

Tubing pressure:@08:(720 Casing Pressure: TSTM Perfs: 1875.0 to 1882.00

Date of Operations: 2/20/00 Weather: Clear +1C Perfs: 1839 to 1840.5

1832 1834.5

Tbg Bttm: 1819.81 m KB PBTD: 1866.00 m KB

Operations:

(0:800 - 11:30) Check pressures on wellhead. 580kPa on tubing, 0kPa on casing. Run pressure gradient with Baker slickline. BHP at 1830m - 13040kPa @65C Run slickline bottom hole sampler and collect 1.5L sample. Fluid level at 900m Rig out slick line

(11:30 - 18:00) Rig up and run sandline swab unit. Pulled 3 swabs, tubing on vac. Recovered 4.1m^3 BSW with traces of gas. Salinity was 20000ppm,, Ph - 7 Tried to light flare stack, gas flow not strong enough to ignite. Waited 2 hours and pulled another swab with 0.65m^3 recovered and same salinity and Ph, tubing on vac. Wait another 2 hours and pull another swab, recovered 0.3m^3, same properties as before. Last sample is very dark in color, may be invert or fluid is laden with rubber from all the dry swabs we have pulled through this string. Tubing had slight blow but TSTM on each swab. Rig out swab, shut in well and record build up pressures with Norwood Testers.

Total BSW recovered: 5.15m^3 Fluid recovered and measured in Norwood Pressure Vessel

24.5m^3 frac fluid with breaker from 400bbl sloped tank shipped Via Compass Transfer to LaGlace for disposal.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Baker Tools	655		
Slickline	1600		
Fuel-Camp	800		
Compass	2600		
Daily	$17,370	Cumulative Amount:	$404,472

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

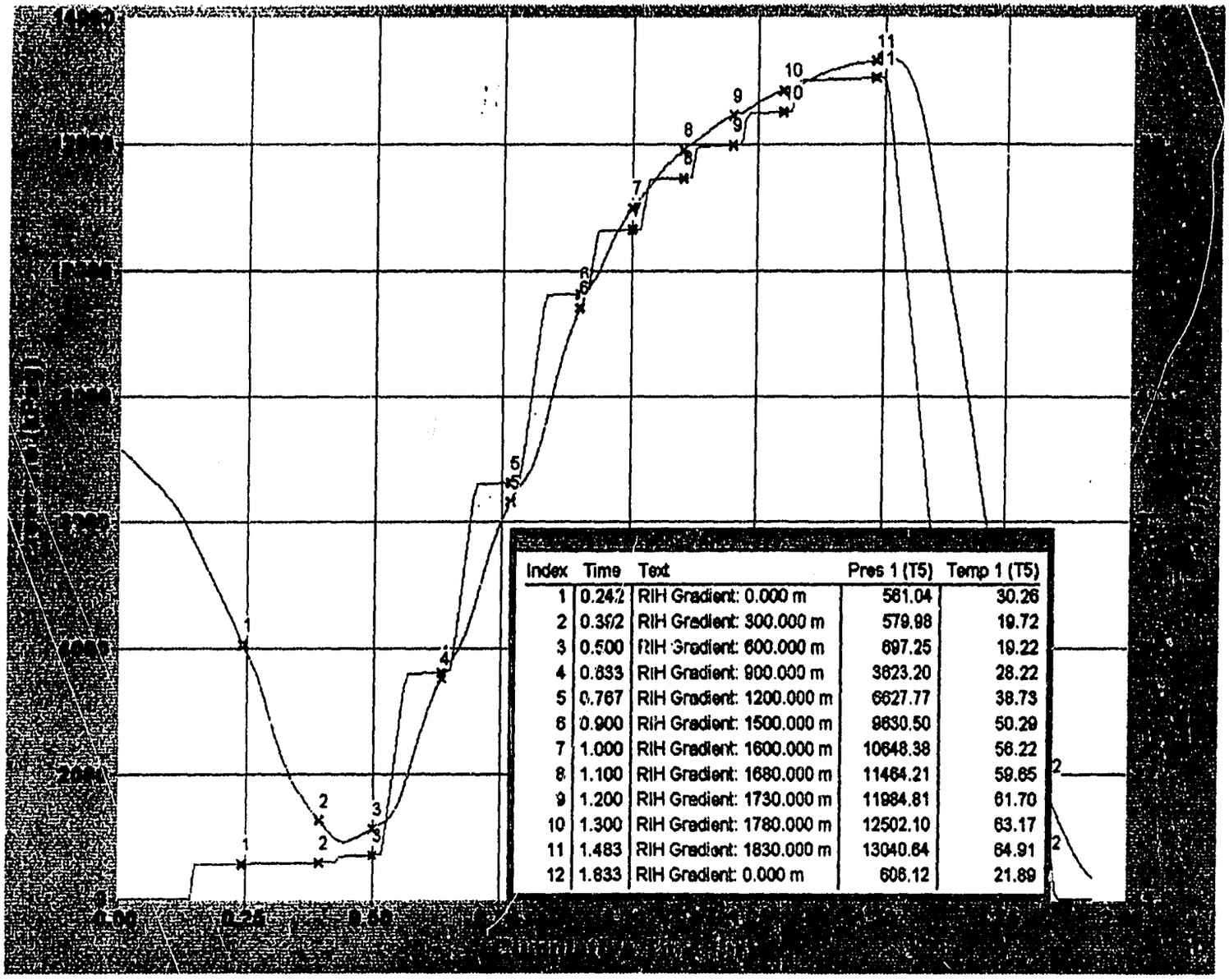
Contractor: Cenelta 42 Phone #:

Previous cum cost: $387,102

AFE Amt: AFE # : 009N925078

Company Name	PARAMOUNT RESOURCES LTD.
Well Name	PARA ET AL LIARD
Well Location	A - 01
Date(s) of Test	FEB,20,2000 GRADIENT START @ 07:51 HRS

PARAMOUNT RESOURCES LTD.



Index	Time	Text	Pres 1 (T5)	Temp 1 (T5)
1	0.242	RIH Gradient: 0.000 m	561.04	30.26
2	0.362	RIH Gradient: 300.000 m	579.98	19.72
3	0.500	RIH Gradient: 600.000 m	697.25	19.22
4	0.633	RIH Gradient: 900.000 m	3823.20	28.22
5	0.767	RIH Gradient: 1200.000 m	6627.77	38.73
6	0.900	RIH Gradient: 1500.000 m	9630.50	50.29
7	1.000	RIH Gradient: 1600.000 m	10648.38	56.22
8	1.100	RIH Gradient: 1680.000 m	11464.21	59.65
9	1.200	RIH Gradient: 1730.000 m	11984.81	61.70
10	1.300	RIH Gradient: 1780.000 m	12502.10	63.17
11	1.483	RIH Gradient: 1830.000 m	13040.64	64.91
12	1.833	RIH Gradient: 0.000 m	606.12	21.89

BAKER ATLAS
SLICKLINE DIVISION DATE: FEBRUARY 20/00

ZI DATA SHEET

COMPANY:	PARAMOUNT RESOURCES LTD.						
WELL NAME:	PARAMOUNT ET AL FT.LIARD						
L.S.D.	A-01						
FIELD & POOL:	FT.LIARD / TIGHT HOLE INFO						
TEST TYPE:	ESG						
TUBING SIZE:	73 mm	CASING SIZE:	177.8 mm				
WELL STATUS:	GAS						
ELEVATIONS:	522.7 mKB		517.2 mGL		KB to GL =5.5 m		
PERFORATIONS:	1826.5 to 1835 mGL		M.P.P.	1830.75 mGL			
TOP PROBE SERIAL NO.:	T-3	DATA POINTS:	240	AMPHRS:	0.021		
BOT PROBE SERIAL NO.:	T-5	DATA POINTS:	233	AMPHRS:	0.02		
PROBES PROGRAMMED AT:	30 SECOND SAMPLE RATE						

START OF TEST:	FEB 20,2000	END OF TEST:	
S.I.T.P.:	560 KPA	S.I.T.P.:	
S.I.C.P.:	0	S.I.C.P.:	
RUN DEPTH:	1830 mGL	DATE OFF BOTTOM:	

STOP DEPTH		TIME	
surf		7:51	7:56
300		7:59	8:04
600		8:07	8:12
900		8:15	8:20
1200		8:23	8:28
1500		8:31	8:36
1600		8:37	8:42
1680		8:43	8:48
1730		8:49	8:54
1780		8:55	9:00
1830	mGL	9:01	9:11
SURF		9:27	9:32

COMMENTS: Gradient ran to top of firing head of TCP assembly. Fluid level at approx. 600 mGL.
1.65 m TUBING TO WIRELINE CORRECTION.
PBTB - 1866 mKB CEMENT TOP. KB to THF 4.9m
WELL LICENCE # : NOT AVAILABLE. TIGHT HOLE!!!!!

TESTERS: NORWARD

PROBES RAN BY: Milt PROBES PULLED BY:

Date	Cum Time Hour	Pres kPag	Temp Deg C
2000/02/20 07:40:10	0.0000	0.0000	41.7950
2000/02/20 07:41:40	0.0250	0.0000	41.1650
2000/02/20 07:43:10	0.0500	0.0000	40.4480
2000/02/20 07:44:40	0.0750	0.0000	39.6880
2000/02/20 07:46:10	0.1000	0.0000	38.7740
2000/02/20 07:47:40	0.1250	0.0000	37.6300
2000/02/20 07:49:10	0.1500	552.6650	36.1160
2000/02/20 07:50:40	0.1750	555.6240	34.6340
2000/02/20 07:52:10	0.2000	557.0620	33.0280
2000/02/20 07:53:40	0.2250	559.3310	31.3560
2000/02/20 07:55:10	0.2500	561.7800	29.7660
2000/02/20 07:56:40	0.2750	571.9010	28.0010
2000/02/20 07:58:10	0.3000	578.2050	25.4360
2000/02/20 07:59:40	0.3250	577.3960	23.1890
2000/02/20 08:01:10	0.3500	576.8760	21.5540
2000/02/20 08:02:40	0.3750	577.0240	20.3610
2000/02/20 08:04:10	0.4000	583.2830	19.4080
2000/02/20 08:05:40	0.4250	591.8640	18.6030
2000/02/20 08:07:10	0.4500	683.0120	18.4540
2000/02/20 08:08:40	0.4750	689.9470	18.7880
2000/02/20 08:10:10	0.5000	697.2540	19.2180
2000/02/20 08:11:40	0.5250	1180.5990	19.6750
2000/02/20 08:13:10	0.5500	2805.1130	20.8340
2000/02/20 08:14:40	0.5750	3602.9709	23.1970
2000/02/20 08:16:10	0.6000	3612.2971	25.6800
2000/02/20 08:17:40	0.6250	3620.6270	27.6780
2000/02/20 08:19:10	0.6500	3670.6550	29.1880
2000/02/20 08:20:40	0.6750	5196.8340	30.5660
2000/02/20 08:22:10	0.7000	6608.7969	32.8800
2000/02/20 08:23:40	0.7250	6616.0898	35.5480
2000/02/20 08:25:10	0.7500	6623.3198	37.6620
2000/02/20 08:26:40	0.7750	6629.8291	39.1900
2000/02/20 08:28:10	0.8000	7707.9102	40.4140
2000/02/20 08:29:40	0.8250	9300.8467	42.4400
2000/02/20 08:31:10	0.8500	9617.5635	45.6410
2000/02/20 08:32:40	0.8750	9623.6279	48.2920
2000/02/20 08:34:10	0.9000	9630.5039	50.2860
2000/02/20 08:35:40	0.9250	10109.8516	51.7870
2000/02/20 08:37:10	0.9500	10632.1494	53.4320
2000/02/20 08:38:40	0.9750	10640.6816	55.0170
2000/02/20 08:40:10	1.0000	10648.3799	56.2230
2000/02/20 08:41:40	1.0250	11075.1680	57.1480
2000/02/20 08:43:10	1.0500	11449.7607	58.0930
2000/02/20 08:44:40	1.0750	11456.8252	58.9660
2000/02/20 08:46:10	1.1000	11464.2119	59.6520
2000/02/20 08:47:40	1.1250	11921.5801	60.1840
2000/02/20 08:49:10	1.1500	11970.4297	60.7670
2000/02/20 08:50:40	1.1750	11977.7100	61.2920
2000/02/20 08:52:10	1.2000	11984.8115	61.7010
2000/02/20 08:53:40	1.2250	12395.4443	62.0010
2000/02/20 08:55:10	1.2500	12487.7646	62.4360
2000/02/20 08:56:40	1.2750	12495.0674	62.8480
2000/02/20 08:58:10	1.3000	12502.0986	63.1670
2000/02/20 08:59:40	1.3250	12847.1484	63.4050
2000/02/20 09:01:10	1.3500	13004.2461	63.7690
2000/02/20 09:02:40	1.3750	13011.1328	64.1310
2000/02/20 09:04:10	1.4000	13018.0742	64.4060
2000/02/20 09:05:40	1.4250	13024.9453	64.6090

Date	Cum Time Hour	Pres kPag	Temp Deg C
2000/02/20 09:07:10	1.4500	13031.8584	64.7670
2000/02/20 09:08:40	1.4750	13038.3467	64.8810
2000/02/20 09:10:10	1.5000	13044.9268	64.9690
2000/02/20 09:11:40	1.5250	11540.1729	64.8980
2000/02/20 09:13:10	1.5500	9781.7158	64.0640
2000/02/20 09:14:40	1.5750	7990.8950	62.0230
2000/02/20 09:16:10	1.6000	6166.9888	58.6010
2000/02/20 09:17:40	1.6250	4317.4092	54.4160
2000/02/20 09:19:10	1.6500	2452.3799	49.7780
2000/02/20 09:20:40	1.6750	651.2360	44.9330
2000/02/20 09:22:10	1.7000	626.6620	39.9220
2000/02/20 09:23:40	1.7250	614.5120	35.4600
2000/02/20 09:25:10	1.7500	607.9380	31.3860
2000/02/20 09:26:40	1.7750	608.7710	27.7710
2000/02/20 09:28:10	1.8000	606.9520	24.8810
2000/02/20 09:29:40	1.8250	606.3130	22.5610
2000/02/20 09:31:10	1.8500	606.0760	20.6780
2000/02/20 09:32:40	1.8750	0.0000	19.0920
2000/02/20 09:34:10	1.9000	0.0000	17.6730
2000/02/20 09:35:40	1.9250	0.0000	16.5480

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/20/00

Well: Para et al Fort Liard A-01 Day: 12 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Gradient

Tubing pressure:@08:(590 Casing Pressure: TSTM Perfs: 1875.0 to 1882.00

Date of Operations: 2/19/00 Weather: Clear +4C Perfs: 1839 to 1840.5

1832 1834.5

Tbg Bttm: 1819.81 m KB PBTD: 1866.00 m KB

Operations:

(0:800 - 13:00) Safety meeting, make up TCP guns and packer assembly. RIH with 73mm tubing. Set packer at 1820.29m with 8daN compression, correlate on depth with EWLU. Break Kobe pin, rig out wireline, pressure test packer to 14MPa, held OK.

(13:00 - 16:45) Rig out BOP's, nipple up wellhead, attempt to pressure test R45 ring gasket and tubing hanger seals. 73mm extended neck tubing hanger too small for adaptor flange. Install stabbing valve and pup joint into tubing hanger and lift hanger above tubing hanger spool, set slips, install 73mm X 88.9mm XO and 88.9mm tubing hanger, remove slips and set tubing hanger in tubing hanger spool. Nipple up wellhead and pressure test to 18500kPa, held OK. Blew seals in Baker pump, couldn't test wellhead to 21MPa. Drop bar and perforate intervals: 1832-1834.5 and 1839 - 1840.5 with GRIS, 17spm, 60 degree phasing, 36 gram, tubing conveyed perforating guns.

(16:45 - 18:30) No initial pressure build up, small blow from needle valve TSTM. 150kPa after 1/2 hour. Rig up slickline and run in and pull drop bar. Fluid level at 1200m. POH slickline.
Shut in well for night.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Baker Tools	13200	???	
Slickline	1600		
Norwood	1832		
Wireline	17000	???	
Daily	$45,347	Cumulative Amount:	

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenelta 42 Phone #:

Previous cum cost: $341,755

$387,102 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

WELLBORE SCHEMATIC 1

Well: Para et al Fort Liard A-01 Date: 2/19/00

GL 517.40 KB 522.65 CF 517.15 THF 517.75

PBTD ## 1866.00 TD 2046.00

Surface Casing

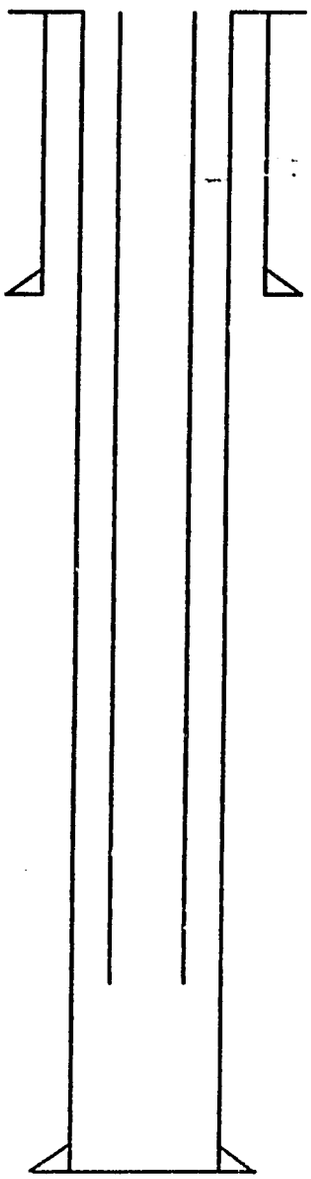
Size: 244.5 Weight: 48.1

Depth 503.00

Production Casing

Size: 177.8 Weight: 34.26

Depth: 2046.00 PBTD: 1985.00



Wellhead

Make: Vetco Gray 346mm X 179mm X21MPa

Spool:	Size:	346X298	Rating	21MPa	S/F F
Masters:	Size:	79	Rating	21MPa	S/F F
Wings:	Size	52	Rating	21MPa	S/F F

Tubing

Size: 73 Weight: 10 9.67 Depth: 1819.81

Bottom Hole Assembly (Bottom up)	Length	Top depth
127mm Bull Plug & Blank Gun	1.24	1840.50
127mm X 60deg.X17spmX36gram Gun	1.50	1839.00
127mm Blank Gun	4.50	1834.50
127mm X 60deg.X17spmX36gram Gun	2.50	1832.00
73mm - Firing Head	0.56	1831.44
73mm X L-80 Pup Jt.	1.95	1829.49
Ported Differential Sub	0.27	1829.22
73mmXL-80 Pup Joint	0.71	1828.51
Separation sub - shift up	0.38	1828.13
73mmXL-80 Pup Joint	3.08	1825.05
Kobe Sub	0.14	1824.91
Baker "R" Nipple	0.33	1824.58
73mmXL-80 Pup Joint -	3.09	1821.49
Baker Lok Set Packer	1.20	1820.29
On/Off Tool with "F" Profile	0.48	1819.81
73mmXL-80 Pup Joint & Long Joint	11.60	1808.21
190 X 73mm X L-80 tubing joints	1805.77	2.44
73mmX88.9mm XO	0.23	2.21
Tubing Hanger+KB-Compression	4.08	-1.87
Wireline Correction	-1.85	-0.02
	1832.02	

BHP and Sucker rods

Perforations & Formation

1832.0	to	1834.5	Mattson
1839.0	to	1840.5	Mattson

Comments regarding reason for workover: (deviated well, rod wear, scale, etc.)

This is for second TCP run to perf the above intervals

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/19/00

Well: Para et al Fort Liard A-01 Day: 11 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Repairing valves in pump manifold

Tubing pressure:@08:(TSTM Casing Pressure: 140 Perfs: 1875.0 to 1882.00

Date of Operations: 2/18/00 Weather: Cloudy -20C Perfs: N/A to N/A

Tbg Bttm: 1862.23 m KB PBTD: 1985.00 m KB

Operations:

(08:00 -11:30) Complete repairs to pump manifold. Pressure test manifold, lines, and pipe rams to 1400kPa and 21,000kPa. Had to replace gate seal on left side of pipe rams and tighten up a flange. Tested OK. Pressure test annular to 7000kPa, had to retighten bolts on ring seal. Test OK.

(11:30 - 14:00) POH Lay down 5 singles and 3 pups, stand rest of tubing in derrick(95 stands). Break down and lay out TCP assembly.

(14:00 - 18:00) Rig up EWLU, safety meeting, run in hole with 177.8mm permanent bridge plug and correlate on depth with CBL log. Set bridge plug at 1870m, ensure plug is set, POH and rig up to run 177.8mm cement bailer. Mix cement, load cement bailer and RIH. Dump 4m cement on top of Permanent Bridge Plug at 1870m. POH and rig out EWLU.

Well shut in and secured for the night.

22m^3 of produced BSW, frac fluid, and trace amount of diesel (invert mud) hauled to WCT in F.S.J. by Pro North Well Management. Fluid taken from rig tank.

Extra fluid in rig tank is from steam injection as steam coil in rig tank has not been tested for leaks, and Cenalta does not want to risk getting fluids from rig tank in boiler.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	1600		
Pro North	2300		
Wireline	5000	???	

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $320,485

Daily $21,270 Cumulative Amount: $341,755 AFE Amt: AFE # : 009N925078

PARAMOUNT RES I TD.

DAILY COMPLETION REPORT

Date Phoned In: 2/18/00

Well: Para et al Fort Liard A-01 Day: 10 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Repairing valves in pump manifold

Tubing pressure:@08:(TSTM Casing Pressure: 140 Perfs: 1875.0 to 1882.00

Date of Operations: 2/17/00 Weather: Cloudy -20C Perfs: N/A to N/A

Tbg Bttm: 1862.23 m KB PBTD: 1985.00 m KB

Operations:

(08:00 - 14:15) Swab Fluid tagged at 950m Frac fluid, BSW, diesel, and trace amounts of sediment recovered from swabs.

Total of 3m^3 was recovered today, total recovered from all swabbing operations is 20.01m^3

(14:15 - 22:30) Stump test blind rams and stabbing valve, had to replace gate seals on blind rams, replaced several valves and joints of kill line as well as a sweep. Fill tubing, rig out well head, nipple up BOPs, pressure test pipe rams. Couldn't get a test, valve to return line on pump manifold washed out. Will change out valves in morning.

Well shut in and secured for the night.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	1600		
Daily	$13,970	Cumulative Amount:	$320,485

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $306,515

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/17/00

Well: Para et al Fort Liard A-01 Day: 9 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Well shut in, recording shut in pressures

Tubing pressure:@08:(TSTM Casing Pressure: 140 Perfs: 1875.0 to 1882.00

Date of Operations: 2/16/00 Weather: Cloudy -20C Perfs: N/A to N/A

Tbg Bttm: 1862.23 m KB PBTD: 1985.00 m KB

Operations:

(08:00 18:00) Swab Fluid level on first swab was 630m, and was pulled from 1130m w/0.09m^3 fluid recovered. Tubing was swabbed dry after 3 pull and a swab was pulled once every hour there after with fluid level being encountered at aprox. 1650m, pulled from 1825m and aprox. 0.3m^3 of fluid for recovery.

Total fluid recovered for the day 5.10m^3
Very small amount of gas recovered on 2 swabs, but was too small to sample
Total fluid recovered to date 17.01m^3
Fluid recovered looks like frac fluid with small amounts of invert.

Salinity 18000ppm PH 8

Took a sample over to Geologist at Prec. 379. Checked solids under microscope. Lots of rubber from swab cups, with some traces of copper (from pipe dope it is presumed) and very fine silt particles. It is presumed that the fine silt and diesel are from invert drilling operations.

Mud man was supposed to check fluid from frac tank and pressure tank but hasn't arrived yet.

24m^3 of BSW, frac fluid, diesel, and sand shipped to WCT FSJ via Compass Transfer

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	1600		
Trucking	2300		
Propane	3862		
Daily	$20,132	Cumulative Amount:	

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $286,383

$306,515 AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/16/00

Well: Para et al Fort Liard A-01 Day: 8 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Well shut in, recording shut in pressures

Tubing pressure:@08:(150 Casing Pressure: 155 Perfs: 1875.0 to 1882.00

Date of Operations: 2/15/00 Weather: Cloudy -20C Perfs: N/A to N/A

Tbg Bttm: 1862.23 m KB PBTD: 1985.00 m KB

Operations:

(00:00 - 13:30) Well shut in, Norwood recording build up pressures. Pressures at 13:30pm are TBG. = 410 CSG. = 160 Rig in slickline unit to run fluid sample

(13:30 -15:00) RIH with slickline sampler and get fluid sample from 1862m 1.5L of BSW and diesel recovered.

(15:00 - 18:30) Rig up to and swab with sandline and 73mm cups. Fluid level at 630m First swab pulled fairly clear water with a small amount of sediment and hydrocarbon fluid, possibly diesel, last sample had 1 % sediment, was fairly dark and a strong smell of diesel. Total fluid recovered: 4.35 m^3 Last swab encountered fluid at 1699m and was pulled from 1825m with 0.05m^3 recovered.

Rig tank has 26m^3 of BSW, diesel and frac fluid which Compass Transfer hauls to WCT in F.S.J..

4.35m^3 well fluid in Norwood pressure vessel.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	700		
Picker	1680		
Daily	$14,750	Cumulative Amount:	$286,383

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $271,633

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/15/00

Well: Para et al Fort Liard A-01 Day: 7 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Well shut in, recording shut in pressures

Tubing pressure: 215 Casing Pressure: 170 Perfs: 1875.0 to 1882.00

Date of Operations: 2/14/00 Weather: Cloudy -20C Perfs: N/A to N/A

Tbg Bttm: 1862.23 m KB PBTD: 1985.00 m KB

Operations:

(08:00 - 17:30) Record build up pressures on tubing and casing. 4100kPa on tubing and 140kPa on casing prior to rigging in coiled tubing.

(17:30 - 19:30) Rig up Trican coiled tubing and Nitrogen units. Safety meeting with Toolpush, testers, and Safety Boss. Pressure test to 21MPa Flare stack pilot lit and burning.

(19:30 - 23:30) RIH with 38mm coiled tubing and N2 at 20m^3/min. Small pocket of burnable gas encountered at aprox. 1050m. Tagged bottom at 1985m and POH.

7.6m^3 of frac fluid and aprox. 0.5-1m^3 of sand recovered Fluid to surface at 500m
No oil or condensate was noticeably recovered.

(23:30 - 00:30)Shut in well and rig out coiled tubing units.

Shut in build up pressures to be recorded overnight by Norwood Testers

Vac truck transfers 7.6m^3 fluid from pressure tank to rig tank

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	1600		
Trican	48500		
Daily	$62,470	Cumulative Amount:	$334,103

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $271,633

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/14/00

Well: Para et al Fort Liard A-01 Day: 6 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Bleeding down tubing. Bled off to TSTM in 10 minutes through 1/2" choke

Tubing pressure: 11600 Casing Pressure: TSTM Perfs: 1875.0 to 1882.00

Date of Operations: 2/13/00 Weather: -15C & Cloudy/Snow Perfs: N/A to N/A

Tbg Bttm: 1862.23 m KB PBTD: 1985.00 m KB

Operations:

(08:00 - 10:00) Check pressures on casing and tubing.(TSTM) Pull 2 dry runs swabbing. Rig out to frac well.
(10:00 - 13:30) Rig in TSI treesaver and Nowsco Frac equipment. Safety meeting
(13:00 -14:15) Pump 3.5m^3 KCL water down annulus before pressure build up to 16MPa. Pressure held between 15-18MPa on annulus for frac.
(14:15 - 15:45) Start frac by pumping pad, formation broke down at 58.4MPa, feed rate of 4.0m^3/min, start sand after 24.7m^3 pad pumped, 0.4tonne@200, 0.8tonne@400, 1.2tonne@600 2.4tonne@800, 0.7tonne@1000. Injection pressure started to climb from 55MPa to 59.7MPa as soon a sand concentration went to 1000kg/m^3. Flush was started at this point and was continued for 1.5 minutes to displace sand into formation. Pumping was stopped and 35MPa was held on treesaver for 30minutes at which point pressure had dropped to 22MPa, pressure was then bled off treesaver and all frac equipment was rigged out and released. A total of 5.5 tonne sand was pumped downhole, maximum treatment pressure was 60MPa, working pressure was 55MPa, with a total of 39.4m^3 of water being used. Well was shut in and secured with 16MPa trapped on tubing side.

Trican coiled tubing and nitrogen unit will arrive Monday afternoon.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	1600		
Treesaver	5150		
Nowsco	100000	????	

Daily $119,120 Cumulative Amount: $271,633

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $152,513

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/13/00

Well: Para et al Fort Liard A-01 Day: 5 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Run pressure gradient

Tubing pressure: Vacuum Casing Pressure: TSTM Perfs: 1875.0 to 1882.00

Date of Operations: 2/12/00 Weather: -20C & Clear Perfs: N/A to N/A

Tbg Bttm: 1862.23 m KB PBTD: 1985.00 m KB

Operations:

(07:30 - 13:00) Run gauge ring to 1862m. Run pressure gradient and bottom hole fluid sample. Fluid level at 280 meters.
Pressure @ 1862 w/ 65.9C temp = 15697kPa Retrieve gun bar and drop guns.
(13:00 - 15:00) Rig up to swab and run in with sinker bars only to 1800m, remove torque from sand line.
(15:00 18:00) Swab fluid from tubing to rig tank. Recovered 5.8m^3 of diesel, BSW, and solids

Swab Data	Time	Fluid Level	Pull Depth	Amount Recovered
	15:10	196m	766m	1.48m^3
	15:30	484m	950m	1.48m^3
	15:50	1131m	1825m	1.3m^3
	16:20	1309m	1825m	0.74m^3
	17:00	1397m	1825m	0.37m^3
	17:30	1363m	1825m	0.37m^3
	18:00	??	1825m	0.09m^3

Shut in well for night. No gas flow recorded, no initial pressure build up on tubing
Frac equipment lined up for tomorrow morning.
Will continue swabbing in morning.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	2675		
Trucking	7500		
Repairs	150		

Daily $22,695 Cumulative Amount: $152,513

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $129,818

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/12/00

Well: Para et al Fort Liard A-01 Day: 4 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Run pressure gradient

Tubing pressure: N/A Casing Pressure: N/A Perfs: 1875.0 to 1882.00

Date of Operations: 2/11/00 Weather: -20C & Clear Perfs: N/A to N/A

Tbg Bttm: 1862.63 m KB PBTD: 1985.00 m KB

Operations:

(00:00 - 16:30) Continue to RIH with strapped and drifted 73mm X L-80 tubing to 1905m. Fill tubing, set packer, pull off On/Off, displace to KCL water (valves on pump washed, had to pump with low rate). Release packer, lay down 5 joints tubing, space out.
(16:30 - 18:30) Confirmation log, space out, confirmation log. Guns on depth with top shot at 1875m. Pressure test packer to 10MPa. Held OK
(18:30 - 20:15) Confirm no well pressures, nipple down BOP's, nipple up wellhead, Choke and gate valve, froze up, thaw with steam.
(20:15 - 21:15) Drop percussion bar and perforate interval 1875 - 1882m with 127mm, ERHSC, 17SPM, 60 degree phasing, tubing conveyed perforating guns. EWLU didn't have sound recorder, used screw driver as stethoscope, and heard guns enter fluid and fire. No initial pressure build, checked gauge at 15 minute intervals for 1 hour, no pressure increase on gauge. Well shut in and secured for the night. Office informed of results. Will run gradient in morning.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Trl./Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	1000		
Wireline	4700		
Trucking			
Daily	$18,070	Cumulative Amount:	$129,818

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $111,748

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

WELLBORE SCHEMATIC 1

Well: Para et al Fort Liard A-01 Date: 2/11/00

GL 517.40 KB 522.65 CF 517.15 THF 517.75

PBTD 1985.00 TD 2046.00

Surface Casing

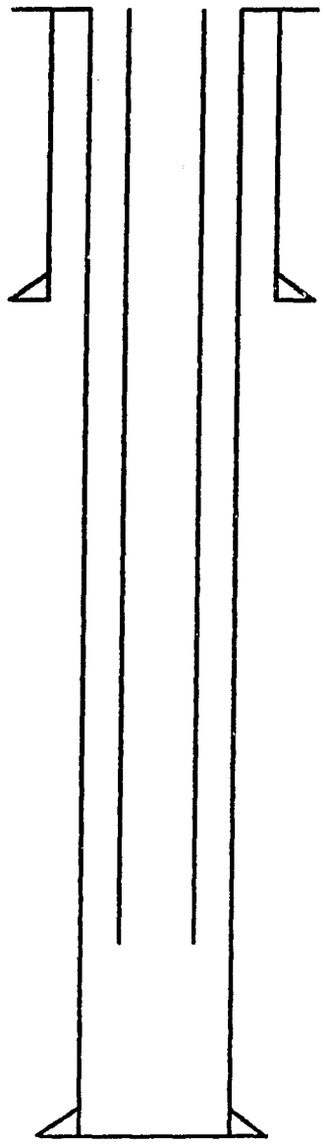
Size: 244.5 Weight: 48.1

Depth 503.00

Production Casing

Size: 177.8 Weight: 34.26

Depth: 2046.00 PBTD: 1985.00



Wellhead

Make: Vetco Gray 346mm X 179mm X21MPa

Spool:	Size:	346X298	Rating	21MPa	S/F F
Masters:	Size:	79	Rating	21MPa	S/F F
Wings:	Size	52	Rating	21MPa	S/F F

Tubing

Size: 73 Weight: 10 9.67 Depth: 1882.00

Bottom Hole Assembly (Bottom up)	Length	Top depth
127mm X 60deg.X17spmX36gram Gun	7.00	1875.00
73mm - Firing Head	0.90	1874.10
73mm X L-80 Pup Jt.	1.87	1872.23
Ported Differential Sub	0.27	1871.96
73mmXL-80 Pup Joint	0.71	1871.25
Separation sub - shift up	0.38	1870.87
73mmXL-80 Pup Joint	3.07	1867.80
Kobe Sub	0.14	1867.66
Baker "R" Nipple	0.33	1867.33
73mmXL-80 Pup Joint	3.09	1864.24
Baker Lok Set Packer	1.13	1863.11
On/Off Tool with "F" Profile	0.48	1862.63
73mmXL-80 Pup Joint	1.28	1861.35
73mmXL-80 Pup Joint & Long Joint	11.48	1849.87
193 X 73mm X L-80 tubing joints	1835.47	14.40
2X73mmXL-80 Pup Joints+long joint	11.90	2.50
Tubing Hanger+KB-Compression	4.35	-1.85
Wireline Correction	-1.85	0.00
	1876.85	

BHP and Sucker rods

Perforations & Formation

1875.0 to 1882.0 Mattson

to

Comments regarding reason for workover: (deviated well, rod wear, scale, etc.)

PARAMOUNT RES LTD.

WELL SUMMARY

Well: Para et al Fort Liard A-01

Date: 2/11/00 Start: _____ End: _____ Field Est. Cost: _____

Elevations: GL: 517.40 KB: 522.65 Co-rod surface: _____

TD: 2046.00 PBTD: 1985.00 Co-rod bottom: _____

	Surface	Intermediate	Production	Logs run:
Csg Size:	244.5		177.8	
Weight:	48.1		34.26	
Depth:	503.00		2046.00	

Wellhead: Vetco Gray 346mm X 179mm X21MPa

Status: _____

Perfs:	To:	Zone:	%H2S
1875.0	1882.0	Mattson	

Production Rates and Pressures: _____

Tbg Joints:	195	Packer:	Baker "A3" Lok Set	@	863.11 m KB
Sizes:	73	PSN:		@	m KB
Weights:	9.67	Profile:	Baker "R" 57.15X55.8	@	1867.33 m KB
Tbg Bttm:	1862.63	Anchor:		@	m KB

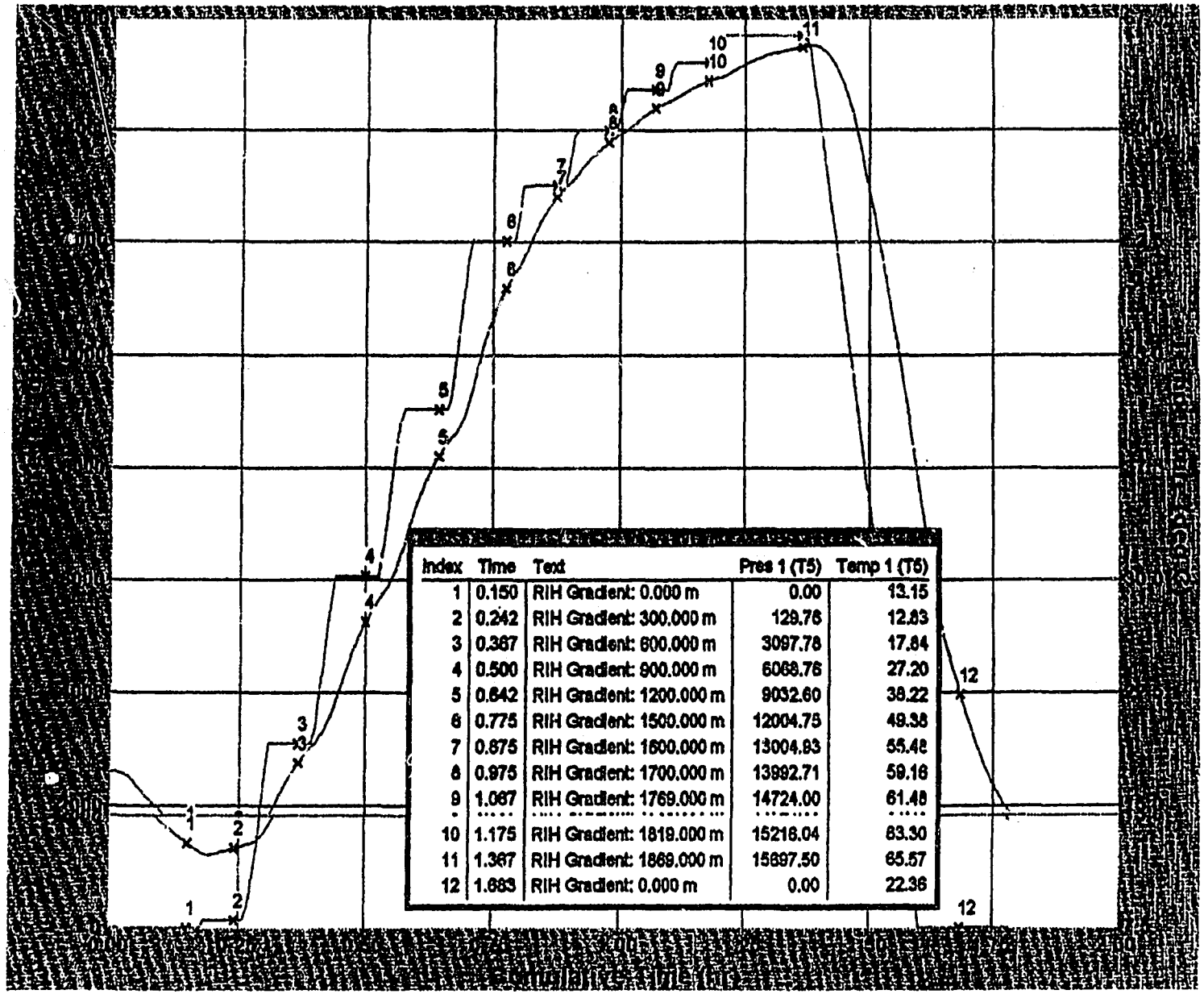
Treatments	Formation

Remarks:

Supervisor Gerry Friend Rig Cenalta 42

Company Name	PARAMOUNT RESOURCES LTD.
Well Name	PARAMOUNT ET AL FT.LIARD
Well Location	A - 01
Date(s) of Test	FEBRUARY 12,2000— GRADIENT STARTED AT 09:36

PARAMOUNT RESOURCES LTD.



Index	Time	Text	Pres 1 (T5)	Temp 1 (T5)
1	0.150	RIH Gradient: 0.000 m	0.00	13.15
2	0.242	RIH Gradient: 300.000 m	129.76	12.83
3	0.367	RIH Gradient: 600.000 m	3097.78	17.84
4	0.500	RIH Gradient: 900.000 m	6068.76	27.20
5	0.642	RIH Gradient: 1200.000 m	9032.60	38.22
6	0.775	RIH Gradient: 1500.000 m	12004.75	49.38
7	0.875	RIH Gradient: 1600.000 m	13004.83	55.48
8	0.975	RIH Gradient: 1700.000 m	13992.71	59.16
9	1.067	RIH Gradient: 1769.000 m	14724.00	61.48
10	1.175	RIH Gradient: 1819.000 m	15218.04	63.30
11	1.367	RIH Gradient: 1869.000 m	15697.50	65.57
12	1.683	RIH Gradient: 0.000 m	0.00	22.36

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/11/00

Well: Para et al Fort Liard A-01 Day: 3 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: RIH with TCP

Tubing pressure: N/A Casing Pressure: N/A Perfs: N/A to N/A

Date of Operations: 2/10/00 Weather: clear Perfs: N/A to N/A

Tbg Bttm: N/A m KB PBTD: 1985.00 m KB

Operations:

(00:00 - 18:00) Complete pressure testing rams and preventer to 21,000kPa and 7000kPa respectively. Run junk basket and gauge ring to 1995m with electric wireline. Strap, drift, and make up and run 40 joints of 73mm, L-80, 9.6kg/m tubing and rack in derrick while waiting on logs to arrive from Fort Nelson. Make up TCP assembly and run in hole with 97 joints. Strap 103 joints tubing on pipe racks.

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
	555		
Safety Boss	785		
Toolhand	655		
Slickline	1000		
Wireline	15000		
Constr.	760		
Trucking	1273		
Tubing	36000		

Daily $66,403 Cumulative Amount: $111,748

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $45,345

AFE Amt: AFE # : 009N925078

PARAMOUNT RES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/10/00

Well: Para et al Fort Liard A-01 Day: 2 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Pressure testing BOP's

Tubing pressure: N/A Casing Pressure: N/A Perfs: N/A to N/A

Date of Operations: 2/9/00 Weather: clear Perfs: N/A to N/A

Tbg Bttm: N/A m KB PBTD: m KB

Operations:

(08:00 - 12:30) Continue to rig up, wireline arrives 12:00 and rigs up to run CBL. Nipple up BOP's
(12:30 - 14:30) Run static cement bond log from plug back to 1000m, rig crew continues to rig up and unload and tally 73mm-L-80-EUE tubing.
(14:30 - 16:30) Rig in pump lines
(16:30 -18:30) Run pressure pass bond log. Perform CAODC rig inspection,
(18:30 - 20:00) Pressure test kill lines and blind rams to 200kPa and 21MPa for 15 minutes. OK
Attempt to pressure test upper and lower pipe rams, gate seals and blind flanges leaking. Toolpush gets seals for double gate on road from Fort St. John. Will complete operation in morning.

Weather: Cloudy -20C Wind: 10-20km/hr NW

Services	Cost	Services	Cost
Rig	6400		
Camp	2600		
Supervision	835		
Rentals	540		
Shack/Tower	555		
Safety Boss	785		
Toolhand	655		
Slickline	1000		
Wireline	12000		
Anchors	1850		
Trucking	1930		

Fluid Manifest	Day	Day	Job Total	Job Total
Well Volumes	Oil	Water	Oil	Water
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #:

Previous cum cost: $16,195

Daily $29,150 Cumulative Amount: $45,345 AFE Amt: AFE # : 009N925078

PARAMOUNT RESOURCES LTD.

DAILY COMPLETION REPORT

Date Phoned In: 2/9/00

Well: Para et al Fort Liard A-01 Day: 1 Page: 1

Purpose of Job: Completion Formation: Mattson

Current Operation: Move In and Rig Up

Tubing pressure: N/A Casing Pressure: N/A Perfs: N/A to N/A

Date of Operations: 2/8/00 Weather: clear Perfs: N/A to N/A

Tbg Bttm: N/A m KB PBTD: _____ m KB

Operations:

(13:00 - 19:00) Move rig and equipment from O-35 location to A-01. Spot equipment, fire up boiler, light plant, etc. Spot matting, pipe racks, catwalk, pump, rig tank, 400 bbl tanks, dog house, and junk rack. Move rig onto matting, leave derrick down. Crew shuts down for night.
(19:00 - 21:00) Anchor truck arrives and puts anchors in ground for rig.

Received 35m^3 KCL water from O-35

Services	Cost	Services	Cost
Fluid Haul	1440		
Rig Move	10920		
Supervision	835		
Lease prep	3000		
Daily	$16,195	Cumulative Amount:	$16,195

Fluid Manifest	Day Oil	Day Water	Job Total Oil	Job Total Water
Well Volumes				
Volume in (m3)				
Volume out (m3)				
New out (m3)				
Load (m3)				
Lease Inventory				
Transfer to (m3)				
Transfer from (m3)				
Fluid on location				

Report from: Gerry Friend Phone #: 819-3581

Contractor: Cenalta 42 Phone #: _____

Previous cum cost: _____

AFE Amt: _____ AFE # : 009N925078

PARAMOUNT RESOURCES LTD.

CASING SUMMARY

WELL NAME PARA ET AL LIARD LOCATION A-01 DATE 99 02 15

SURFACE (X) INTERMEDIATE ( ) PRODUCTION ( ) LINER ( )

Size: 339.7mm

KB: 522.65 m

KB - CF: 5.5 m

NO.	DESCRIPTION	MEASURED LENGTH	KB Depth
1	339.7mm FLOAT SHOE	0.45	503.00
1	339.7mm, 81.1kg/m K-55 JOINT	12.64	502.55
1	339.77 FLOAT	0.32	489.91
37	339.7mm, 81.8kg/m K-55 JOINTS.	490.25	489.59
	Scratchers		
12	Centralizers		

Total String	503.86	
minus KB to Csg Top (STICK UP)	0.86	Cut-off
Landed Depth KB	503.00	Jt. Length
Hole Depth KB	503.00	
Distance Csg Landed Off Bottom	0.00	

Cementing Company NOWSCO

Wash-Type H20 + 2m3 Scavanger Volume: 6m3

Cement Type Lead Slurry 0:1:0 "G" Volume: 42.4m3

Additives 1% CaCl2

Cement Type Tail Slurry Volume:

Additives

Cement Type Above Stage Collar Volume:

Additives

Displacement Rate: Max 0.7 m3/min Average 0.7 m3/min

Calculated Cement Top(s): (fill) 0 mKB (tail) mKB

Returns: Mud 37.4m3 Cement 5 m3

String Wt. in Mud Wt of: 1170 kg/m3 = 41,000 daN

Wt. set on slips: daN

Remarks: STAGE CEMENT AFTER RETURNS.

PLUG DOWN @ 21:59 Hrs 99 02 15.

Supervisor D.McCULLOCH

PARA-C-1XLS

PARAMOUNT RESOURCES LTD.

PIPE TALLY SHEET

DATE 99 02 15

PAGE 1 of 1

WELL NAME PARA ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Size 339.7mm Wt. 81.1kg/m Grade K-55 Cplg ST&C Thread 8rd

Joint	Length	Joint	Length	Joint	Length	Joint	Length	Joint	Length
1	12.84	11	14.21	21	13.91	31	12.64	41	
2	12.35	12	13.24	22	12.79	32	12.78	42	
3	12.34	13	13.98	23	12.90	33	14.04	43	
4	12.66	14	12.78	24	13.15	34	14.69	44	
5	12.64	15	13.06	25	12.80	35	12.32	45	
6	14.28	16	13.05	26	12.92	36	12.85	46	
7	13.96	17	12.60	27	12.79	37	13.75	47	
8	12.98	18	12.78	28	13.62	38	14.18	48	
9	13.82	19	14.21	29	12.94	39		49	
10	13.65	20	14.03	30	12.56	40		50	
A	131.52	B	133.94	C	130.38	D	107.25	E	

Joint	Length	Joint	Length	Joint	Length	Joint	Length	Joint	Length
51		61		71		81		91	
52		62		72		82		92	
53		63		73		83		93	
54		64		74		84		94	
55		65		75		85		95	
56		66		76		86		96	
57		67		77		87		97	
58		68		78		88		98	
59		69		79		89		99	
60		70		80		90		100	
F		G		H		I		J	

						JOINTS	LENGTH
A	131.52	Column Subtotal		Shoe	0.45	Page Total	503.86
B	133.94		265.46	Collar	0.32	Brought FWD	
C	130.38		396.84	Other		Grand Total	503.86
D	107.25		503.09				
E						Joints on Location	
F							
G							
H							
I							
J							
Total	503.09						

Remarks: FLOAT @ 490.25m

Supervisor D.McCULLOCH

NOTE: Use a new page for each casing type. Number joints in order of running.
Indicate joints not run by * and do not include in total length.

PARA-P-1.XLS

PARAMOUNT RESOURCES LTD.

CASING SUMMARY

WELL NAME PARA ET AL LIARD LOCATION _A-01_____ DATE ___ 99 03 23

SURFACE ( ) INTERMEDIATE (X) PRODUCTION ( ) LINER ( )

Size: _177.8mm

KB: __522.65__ m

KB - CF: _5.5 m

NO.	DESCRIPTION	MEASURED LENGTH	KB Depth
1	177.8mm FLOAT SHOE	0.65	2046.00
1	177.8mm, 34.26kg/m L-80 JOINT	7.75	2045.35
1	177.8mm FLOAT	0.45	2037.60
154	177.8mm, 34.26kg/m L-80 JOINTS.	2039.38	2037.15
	Scratchers		
30	Centralizers		

	Total String	2048.23	
minus	KB to Csg Top (STICK UP)	2.23	Cut-off
	Landed Depth KB	2046.00	Jt. Length
	Hole Depth KB	2046.00	
	Distance Csg Landed Off Bottom	0.00	

Cementing Company: NOWSCO

Wash-Type: 3m3 Diesel +3m3Nowflush — Volume: 6m3

Cement Type Lead Slurry: 10t-1:1:2 Scavanger + 17t- 1:1:2 Fill — Volume: 27.91m3

Additives: 0.5% T-10

Cement Type Tail Slurry: 15t- 0:1:0 — Volume: 11.35

Additives: 0.8% NFL-2 + 1% A-11

Cement Type Above Stage Collar — Volume:

Additives:

Displacement Rate: Max 1.04 m3/min Average 1.04 m3/min

Calculated Cement Top(s): (fill) 0 mKB (tail) 1333 mKB

Returns: Mud 75m3 Cement Scavanger 3 m3

String Wt. in Mud Wt of: 970 kg/m3 = 56,000 daN

Wt. set on slips: 40,000 daN

Remarks:

PLUG DOWN @ 20:12 Hrs 99 03 23.

Supervisor D.McCULLOCH

PARAMOUNT RESOURCES LTD.

PIPE TALLY SHEET

DATE 99 03 23

PAGE 2 of 2

WELL NAME PARA ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Size 177.8 Wt. 34.26kg/m Grade I-80 Cplg LT&C Thread 8rd

Joint	Length	Joint	Length	Joint	Length	Joint	Length	Joint	Length
1	13.59	11	13.54	21	13.57	31	13.57	41	13.57
2	13.55	12	13.57	22	13.60	32	13.58	42	13.52
3	13.57	13	13.54	23	13.58	33	13.48	43	13.59
4	13.56	14	13.56	24	13.57	34	13.66	44	13.59
5	13.57	15	13.54	25	13.57	35	13.54	45	13.42
6	13.57	16	13.55	26	13.60	36	13.58	46	13.55
7	13.68	17	13.56	27	13.57	37	13.58	47	13.60
8	13.60	18	13.58	28	13.56	38	13.57	48	13.57
9	13.64	19	13.49	29	13.60	39	13.09	49	13.58
10	13.57	20	13.59	30	13.22	40	13.60	50	13.06
A	135.90	B	135.52	C	135.44	D	135.25	E	135.05

Joint	Length	Joint	Length	Joint	Length	Joint	Length	Joint	Length
51	13.58	61		71		81		91	
52	13.56	62		72		82		92	
53	13.57	63		73		83		93	
54	13.59	64		74		84		94	
55	13.59	65		75		85		95	
56		66		76		86		96	
57		67		77		87		97	
58		68		78		88		98	
59		69		79		89		99	
60		70		80		90		100	
F	67.89	G		H		I		J	

		Column Subtotal
A	135.90	
B	135.52	271.42
C	135.44	406.86
D	135.25	542.11
E	135.05	677.16
F	67.89	745.05
G		
H		
I		
J		
Total	745.05	

Shoe	0.65
Collar	0.45
Other	

	JOINTS	LENGTH
Page Total	55	745.05
Brought FWD	100	1,302.08
Grand Total	155	2,047.13
Joints on Location	158	

Remarks:

Supervisor D.McCULLOCH

NOTE: Use a new page for each casing type. Number joints in order of running.
Indicate joints not run by * and do not include in total length.

PARAMOUNT RESOURCES LTD.

PIPE TALLY SHEET

DATE 99 03 23

PAGE 1 of 2

WELL NAME PARA ET AL LIARD LOCATION A-01 60 00' 4.641"-123 15' 4.862"

Size 177.8 Wt. 34.26kg/m Grade I-80 Cplg LT&C Thread 8rd

Joint	Length	Joint	Length	Joint	Length	Joint	Length	Joint	Length
1	7.75	11	9.56	21	13.56	31	13.59	41	13.58
2	13.60	12	13.58	22	13.56	32	13.59	42	13.60
3	13.56	13	13.56	23	13.67	33	13.56	43	13.58
4	9.41	14	13.58	24	9.08	34	13.55	44	13.56
5	9.33	15	13.54	25	10.40	35	12.93	45	13.58
6	9.30	16	13.57	26	13.54	36	13.57	46	13.56
7	9.33	17	13.58	27	13.57	37	13.54	47	13.59
8	8.25	18	12.96	28	13.58	38	13.58	48	13.59
9	9.23	19	13.56	29	13.57	39	13.57	49	13.57
10	9.52	20	13.57	30	13.57	40	13.68	50	13.42
A	**99.28**	**B**	**131.06**	**C**	**128.10**	**D**	**135.16**	**E**	**135.63**

Joint	Length	Joint	Length	Joint	Length	Joint	Length	Joint	Length
51	13.56	61	13.51	71	13.60	81	13.48	91	13.57
52	13.61	62	13.56	72	13.56	82	13.58	92	13.56
53	13.53	63	13.56	73	13.60	83	13.57	93	13.54
54	13.53	64	11.90	74	13.58	84	13.57	94	13.56
55	13.67	65	13.59	75	13.59	85	13.57	95	13.59
56	13.56	66	13.56	76	13.58	86	13.58	96	13.60
57	12.49	67	13.57	77	13.58	87	13.57	97	13.58
58	13.58	68	13.53	78	13.56	88	13.58	98	13.58
59	10.65	69	13.53	79	13.59	89	13.58	99	13.60
60	13.59	70	13.56	80	13.59	90	13.56	100	13.56
F	**131.77**	**G**	**133.87**	**H**	**135.83**	**I**	**135.64**	**J**	**135.74**

		Column Subtotal
A	99.28	
B	131.06	230.34
C	128.10	358.44
D	135.16	493.60
E	135.63	629.23
F	131.77	761.00
G	133.87	894.87
H	135.83	1,030.70
I	135.64	1,166.34
J	135.74	1,302.08
Total	1,302.08	

Shoe	0.65
Collar	0.45
Other	

	JOINTS	LENGTH
Page Total		
Brought FWD		
Grand Total		

Joints on Location

Remarks:

Supervisor D.McCULLOCH

NOTE: Use a new page for each casing type. Number joints in order of running.
Indicate joints not run by * and do not include in total length.

PARA-P~1.XLS

GEOLOGICAL REPORT

PARAMOUNT
ET AL LIARD A-01

60° 00' 05" 123° 15' 05"

File No: 99N-2334

Prepared by:

BARRY CLATTENBURG
Staff Wellsite Geologist
CL Consultants Limited

Prepared for:
Paul Collens
PARAMOUNT RESOURCES LIMITED

PERMIT TO PRACTICE
CL CONSULTANTS LIMITED
Signature: _____
Date: March 26, 1999
PERMIT NUMBER: P 2911
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

CL Consultants Limited

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SYNOPSIS

OPERATOR:	Paramount Resources Ltd.	
WELL NAME:	Paramount et al Liard A-01	
LOCATION:	60° 00' 05" 123° 15' 05"	
FIELD:	Undefined	
PROVINCE:	Northwest Territories	
ELEVATIONS:	G.L. 517.15m	K.B. 522.65m
SPUD DATE:	February 09, 1999	05:30 hrs.
T.D. DATE:	March 19, 1999	20:20 hrs.
CONTRACTOR:	Precision Drilling Ltd.	Rig: 373
HOLE SIZE:	222mm	
COLLARS:	218mm/165mm	
MUD COMPANY:	Baker Hughes Inteq	
MUD TYPE:	Gel Chem/Invert	
WIRELINE LOGGING CO.:	Baker Atlas	
LOG RECORD:	Run #1	
1) HDIL-GR	1928.1m - 502.0m	
2) ZDL-CNL-GR-XYCAL	1929.2m - 502.0m	
3) MAC-GR-CAL	1923.4m - 502.0m	
	Run #2	
1) HDIL-GR	2042.3m - 1925.0m	
2) ZDL-CNL-GR-XYCAL	2043.7m - 1925.0m	
3) MAC-GR-CAL	2041.2m - 1925.0m	
TESTING COMPANY:	Baker Oil Tool/Delta P Test Corp	

SYNOPSIS (cont.)

TEST RECORD:	1) 1906m - 1917m (Mattson) 2) 1865m - 1992m (Mattson) 3) 1819m - 1848m (Mattson) 4) 1781m - 1804.4m (Mattson) 5) 1405m - 1429m (Chinkeh) 6) 1638m - 1698m (Fantasque) 7) 2028m - 2046m (Mattson) 8) 1955m - 1965m MR (Mattson) 9) 1955m - 1965m MR (Mattson)
DRILLING SUPERVISION:	Dennis McCulloch
GEOLOGICAL SUPERVISION:	Barry C. Clattenburg
TOTAL DEPTH:	Driller: 2046.0 metres Logger: 2044.8 metres

FORMATION TOPS (■)

PERIOD / GROUP / FORMATION (LOCAL UNITS)	PROGNOSIS (subsea)	PROGNOSIS (KB)	SAMPLES (driller)	LOGS (KB)	LOGS (subsea)
Lower Cretaceous					
Lepine					
Scatter	- 448	971	1105	1099	- 576
Garbutt	- 584	1107	1236	1235	- 712
Chinkeh	- 770	1293	1410	1407	- 884
Triassic	- 781	1304	1455?	1447?	- 924
Permian					
Belloy	- 918	1441	1515	1517	- 994
Fantasque	- 956	1479	1584	1571	-1048
Mattson	-1072	1595	1721	1721	-1198
Mississippian					
Flett	-1807	2330			
T.D.	-1827	2350	2046	2045	-1522

DEVIATION SURVEY RECORD

Depth (m)	Deviation	Azimuth	Depth (m)	Deviation	Azimuth
40 (311mm)	0.06		1571	1.50	
68	0.25		1619	2.25	
95	0.88		1648	3.50	
125	0.25		517 (UGC)	1.30	286.1
153	0.25		646	1.20	263.7
182	0.25		788	1.00	274.7
211	1.00		925	0.80	282.0
228	0.75		1061	1.00	266.7
258	0.75		1182	1.30	281.9
288	0.50		1318	1.90	286.1
316	0.88		1451	1.10	283.0
343	0.75		1587	1.70	328.9
372	1.00		1638	3.20	318.1
401	0.25		1644	2.90	318.0
430	0.25		1653	3.50	319.8
460	1.00		1653	3.80	322.3
488	0.88		1673	4.10	319.3
95 (445mm)	0.25		1682	4.00	312.9
153	0.25		1692	3.70	306.4
211	0.13		1701	3.30	303.2
316	0.50		1711	2.80	299.3
380	0.25		1721	2.50	296.5
430	0.75		1731	2.40	296.1
530 (222mm)	1.25		1740	2.50	294.0
575	1.25		1749	2.60	294.5
625	1.25		1759	2.80	295.0
671	Misrun		1768	2.90	295.5
680	1.50		1775	3.00	295.7
728	1.00		1788	2.70	290.8
785	1.25		1798	2.60	281.0
835	0.75		1807	2.70	276.0
890	1.00		1817	3.10	273.4
939	1.00		1827	3.40	273.7
997	1.00		1836	3.60	273.3
1044	1.00		1846	3.40	272.9
1092	1.50		1855	3.30	271.0
1149	1.31		1865	3.20	271.8
1198	1.50		1874	3.00	272.2
1255	1.50		1884	2.90	275.1
1313	2.00		1894	3.00	276.4
1351	2.00		1903	3.20	278.3
1390	1.88		1935 (Extrap)	3.85	284.6
1428	1.50		2039	4.00 (?)	
1476	0.75				
1523	1.25				

BIT RECORD

#	Type	Size (mm)	In	Out	Total (m)	Hrs drilled	FOB (daN)	RPM	Cond. T B G
1A	SM FD SS	311	0	281	281	25.00	6-8	180	6-4-I
2A	V L127XG	311	281	501	220	32.50	5-8	180	5-4-I
1B	R S21GT	445	0	295	295	19.75	6-10	140	3-5-I
2B	HC X33	445	295	503	208	32.50	6-12	140	4-4-I
1	ETD437XG	222	503	1118	615	61.00	6-14	65-120	4-4-I
2	ETD527XG	222	1118	1333	215	34.00	10-12	65-120	2-2-I
1C	ARC 325	156	1333	1351	18	2.00	3-4	60	GOOD
3RR2	ETD527XG	222	1351	1450	119	53.00	8-10	70-120	5-4-1
4	C3LRGSP	222	1520	1654	204	50.25	10-16	60-120	8-L2C
5	C45LRGS	222	1654	1654	0	Clean out to top of fish.			
6RR5	C45LRGSP	222	1654	1654	0	Clean out to top of fish.			
7	HC HR40C	222	1654	1696	42	14.50	8-12	100/135	6-E-1
8	SM GM89FD	222	1696	1783	87	40.40	8-12	100/135	4-E-I
9	SM GM89F	222	1783	1789	6	6.00	8-12	100	1-A-I
10RR9	SM GM89F	222	1789	1851	62	24.75	8-10	100/135	5-E-I
11	RD. HP64	222	1851	1917	66	32.00	8-10	100/145	6-E-I
12RR1	ETD437	222	1917	1917	0	Clean out trip.			
13	SM F57OD	222	1917	1935	18	11.5	8-10	90	2-E-I
14RR1	ETD437	222	1935	1935	0	Clean out trip.			
15RR13	ETD437	222	1933	2046	111	80.5	12-18	80	7-E-2

BIT CONDITION		SCALE
Tooth Wear	(T)	0 - 8
Bearing Wear	(B)	0 - 8
Gauge	(G)	in or (mm) under
New Bit	T=0	B=0 G=in

DAILY DRILLING CHRONOLOGY

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
02/09/99	214m	191m	15.00	Nipple up diverter and mix mud. Rig to spud. Held diverter drill. Spud at 05:30 hrs. 02/09/99. Drill and survey 311mm pilot hole. Clean mud rings from flow line.
02/10/99	348m	134m	18.25	Drill and survey 311mm pilot hole. Trip out of hole for bit change at 281m. Make up and run BHA into hole. Clean out bridges from 205m to bottom. Drill and survey 311mm pilot hole.
02/11/99	492m	144m	22.25	Drill and survey 311mm pilot hole.
02/12/99	501m	9m	16.50	Drill and survey 311mm pilot hole to 501m. Trip out of hole. Lay down pipe and collars. Tight hole 377m - 256m. Make up BHA and open hole to 444.5mm. Drill 445mm hole. Survey.
02/13/99	501m	0m	19.00	Open hole to 444.5mm to 295m. Circulate bottoms up. Trip out of hole for bit change. Clean hole 280m to 295m. Open hole to 444.5mm to 363m.
02/14/99	503m	2m	20.00	Ream out 311mm hole to 444.5mm to 501m. Drill 444.5mm hole to 503m. Circulate hole clean. Perform wiper trip. Hole tight 247m to 185m.
02/15/99	503m	0m	0.00	RIH. clean 401m to bottom. Circulate and condition hole. Trip out of hole and lay down 200mm drill collars. Run joints of 349.7mm, 81.1kg/m, K-55, LT&C, 8rd, surface casing landed at 503m. Circulate and condition hole. Rig up cementers.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
				Cement surface casing. Wait on cement.
02/16/99	503m	0m	0.00m	Wait on cement. Cut casing. Remove pipe racks and cat walk to break down diverter and related equipment. Install casing head, BOP stack, and HCR lines. Change out rams. Re-install catwalk and tie in manifold. Circulate invert at tank farm.
02/17/99	560m	57m	5.00	Nipple up BOPs. Pressure test with Falcon Pressure Testers. Make up BHA and RIH. Circulate. Pressure test lower pipe rams, upper pipe rams, annular, BOP valves, HCR valve, kill line valves, stabbing valve, inside BOP, upper and lower kelly cocks. Drill out float, cement, and shoe. Drill 5m 222mm hole. Circulate bottoms up. Perform leak off test. Drill 222mm hole. Survey.
02/18/99	800m	240m	20.25	Drill 222mm hole. Survey.
02/19/99	984m	184m	22.00	Drill 222mm hole. Survey.
02/20/99	1118m	134m	14.25	Drill 222mm hole. Survey. Circulate bottoms up. Trip out of hole. Work tight hole at 928m. Make up BHA and RIH. Clean to bottom.
02/21/99	1234m	116m	22.25	Drill 222mm hole. Survey.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
02/22/99	1333	99m	12.00	Drill 222mm hole to 1306m. Circulate up sample. Drill 222mm hole to 1325m. Circulate up sample. Drill 222mm hole to 1331m. Circulate up sample. Drill 222mm hole to 1332m. Circulate up sample. Drill 222mm hole to 1333m. Circulate up sample. Pump pill and trip out of hole. Pick up core barrels. Slip and cut drilling line.
02/23/99	1363m	30m	8.00	Wait on jars. R.I.H. Clean 16m to bottom. Circulate. Drop ball. Cut Core #1. Circulate bottoms up. Pump pill. Trip out of hole and recover core. Service and lay down core barrels. Make up BHA and RIH. Ream rathole. Drill 222mm hole. Survey.
02/24/99	1454m	91m	16.00	Drill 222mm hole to 1452m. Circulate. Pump pill. Trip out of hole for bit change. Make up BHA and RIH. Clean 8m to bottom. Drill 22 mm hole.
02/25/99	1587m	133m	21.00	Drill 222mm hole. Survey.
02/26/99	1638m	51m	22.00	Drill 222mm hole. Survey.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
02/27/99	1654m	16m	6.50	Drill 222mm hole. Survey. Pump pill and trip out of hole. Missing 2 cones. Lay down 2 drill collars. RIH with near bit stabilizer. Problems with rubber from cement wiper plug. Trip out of hole and lay down stabilizer. Change out BHA and RIH. Ream undergauge hole.
02/28/99	1654m	0m	5.25	Ream undergauge hole from 1636m to 1654m. Trip out of hole. RIH with magnet Circulate to top of fish Work tool. Trip out of hole. Recover steel slivers. RIH with mill. Mill on fish. Trip mill out of hole.
03/01/99	1654m	0m	0.00	Trip mill out of hole. Make up magnet and RIH. Circulate and work magnet. Trip out of hole. Recover steel slivers and bearings. RIH with bit. Circulate and work on junk. Trip out of hole. RIH with magnet. Circulate and work magnet. Trip out of hole and recover 1 cone. RIH with magnet.
03/02/99	1687m	33m	9.25	RIH with magnet. Circulate and work magnet. Trip out of hole and recover 1 cone and 2 bearing carriers. Pick up United Geocom directional drilling tools and MWD. Directional survey to bottom. Drill 222mm hole. Slide 1678m to 1687m.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
03/03/99	1714m	27m	15.50	Directional drill 22mm hole to 1696m. Trip out of hole. Change bit and set up motor to 1.25. RIH. Directional drill 222mm hole.
03/04/99	1763m	49m	22.00	Directional drill 222mm hole. Survey.
03/05/99	1789m	26m	12.75	Directional drill 222mm hole to 1783m. Survey. Trip out of hole for bit change. RIH with NB # 9. Directional drill 222mm hole to 1789m. Trip out of hole for mud motor failure.
03/06/99	1828m	39m	16.25	Trip out of hole and change out mud motor. RIH and clean to bottom. 1.5m fill. Directional drill 222mm hole. Survey.
03/07/99	1863m	35m	14.50	Directional drill 222mm hole. Survey. Circulate up sample. Trip out of hole for mud motor failure. Change bit and mud motor and RIH. Slip drilling line and finish RIH. Clean to bottom. 3m fill.
03/08/99	1908m	45m	22.50	Directional drill 222mm hole. Survey.
03/09/99	1917m	9m	3.50	Directional drill 222mm hole. Survey. Stop drilling at 1917m and circulate up sample. Pump pill. Trip out of hole and lay down directional tools. Make up test tools and RIH. Perform DST #1. Pull test tools free and pull out of hole. Recover fluid.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
03/10/99	1926m	9m	6.00	Reverse circulate out DST #1 recovery. Trip out of hole and recover and read recorders. Service test tool and laydown on catwalk. RIH for clean out trip. Circulate and trip out of hole. Break down and load out test tools. RIH. Circulate to bottom. Drill 222mm hole.
03/11/99	1935m	9m	5.50	Drill 222m hole to a total depth of 1935m. Circulate up sample. Wiper trip. Circulate and condition hole. Trip out of hole. Rig up Baker Atlas and log well.
03/12/99	1935m	0m	0.00	Finish logging with Baker Atlas. Pick up Baker Oil Tools test tools. RIH and perform DST #2. Lost seat during preflow. Trip out of hole. Recover and read recorders. Change out top and bottom packers. Dump and save fluid from 1 BHS. Make up tools and RIH. Head up and prepare for DST #3.
03/13/99	1935m	0m	0.00	Perform DST #3. Trip out of hole with test tools. Reverse out 200m of fluid recovery. Finish tripping out of hole. Recover recorders, samplers, and service tool. Slip and cut drilling line. Trip in hole. Head up and perform DST #4.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
03/14/99	1935m	0m	0.00	Perform DST #4. Trip out of hole with test tools. RIH with DST #5. Perform DST #5.
03/15/99	1935m	0m	0.00	Perform DST #5. Trip out of hole with test tools. Lay down tools and RIH for clean out. Circulate hole clean. Trip out of hole. Make up test tool and RIH. Perform DST #6.
03/16/99	1942m	7m	8.00	Perform DST #6. Trip out of hole with test tools. Service and load out test tools. Make up BHA and strap in hole. Clean to bottom and drill 222mm hole.
03/17/99	1982m	40m	23.25	Drill 222mm hole.
03/18/99	2016m	34m	19.25	Drill 222mm hole. Circulate up sample. W.O.O. Drill 222mm hole.
03/19/99	2046m	30m	18.50	Drill 222mm hole. Circulate up sample. Drill 222mm hole. Circulate up sample. Wiper trip. Circulate and condition hole.
03/20/99	2046m	0m	0.00	Circulate and condition hole. Strap out to log. Log with Baker Atlas. Rig out loggers. Lay down collars. Pick up Baker test tools and RIH. Perform DST #7.

DAILY DRILLING CHRONOLOGY (cont.)

Date	Depth 24:00	Progress (24 hrs)	Drilling (hrs)	Rig activity 00:00 - 24:00
03/21/99	2046m	0m	0.00	Perform DST #7. Deflate, pull free, and trip out of hole. Recover recorders and service tools. Make up DST #8 and RIH. Pump up packers. No seat. Try unsuccessfully to re-pump up packers. Trip out of hole. Change out bottom packer and pump.
03/22/99	2046m	0m	0.00	Make up test tool. RIH with DST #9. Perform DST #9. POOH, recover fluid, service test tool, and recover recorders. Break down test tool and load out. RIH with bit. Circulate and condition hole. Lay down pipe.

DRILLSTEM TEST

DRILLSTEM TEST No. 1

Date: March 9-10, 1999

Formation: Mattson

Interval: 1906m to 1917m

Test type: Bottom Hole Conventional

Packers: 177mm

Hole size: 222mm

Drill pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools/Delta P Test Corp.

PRESSURES:		Times:	
IH:	18259 kPa		
1st IPF:	9440 kPa	1st PF:	10 min
1st FPF:	14369 kPa		
1st SI:	17356 kPa	1st SI:	3 min
2nd IPF:	17982 kPa	2nd PF:	15 min
2nd FPF:	17429 kPa		
2nd SI:	17516 kPa	2nd SI:	60 min
3rd IF:	17516 kPa	VO:	60 min
FF:	17541 kPa		
FSI:	17574 kPa	FSI:	120 min
FH:	18211 kPa	BHT: 64.3 C	

NOTE: Above pressures are from real time charts. Unable to get pressures in field from downhole recorder due to tool plugging.

Results:

Flow comments: 1st PF: No blow for 7 minutes as air line to test head was not open. When air line opened had SAB immediately. NGTS. Delta P real time tool indicated test tool probably plugged.
2nd PF: WAB increasing to SAB in 10 minutes. NGTS.
VO: WAB throughout. NGTS. Delta P real time tool indicated test tool was still shut in. This suggested tool was plugged.

Recovery: 660m of fluid (Top 108m was invert and salty water. Bottom 552m was salty water.). Salinity 22000 ppm.

DRILLSTEM TEST

DRILLSTEM TEST No. 1

Test comments: Delta P real time chart indicated tool plugged 5 minutes into 1st preflow. Lack of draw down made it difficult to get reliable build up pressures. Baker Tools advised Paramount office there was enough information on charts to do Horner plot.
1 invert sample (sample 1-MT) collected at flow line prior to running test. 4 recovery samples. Sample 1-A: taken at top of recovery column at 660m was invert and salty water. Sample 1-B: taken at 552m was salty water. Sample 1-C: taken at 200m was salty water. Sample 1-D: taken at bottom of recovery at 0m was invert that was used to reverse circulate out recovery. Bottom hole sampler #246. All samples sent to AGAT Labs, Fort St. John, via Baker Oil Tools Tester, Bob Allen.

DRILLSTEM TEST

DRILLSTEM TEST No. 2

Date: March 12, 1999

Formation: Mattson

Interval: 1865m to 1892m

Test type: Inflate Straddle

Packers: 178mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools/Delta P Test Corp.

PRESSURES:		Times:	
IH:	18228 kPa		
1st IPF:	241 kPa	1st PF:	11 min
1st FPF:	418 kPa		
FH:	18212 kPa		
ISI:(2 min)	4220 kPa*	BHT:	60.2 C

*Delta P real time chart

Results:

Flow comments: 1st PF: WAB throughout. Lost packer seat 2 minutes into ISI.

Recovery: 15m of invert.

Test Comments: Packer seat held for PF. Mud started to leak around packers at ISI. Pumped packers up for an additional 20 minutes. Could not get seat. Moved packers up 1m and pumped up packers for 30 min. Unable to get seat. Discontinue test.
1 invert sample (sample 2-MT) collected at flow line prior to running test. Sample 2-A: taken at top of 15m of recovery was invert. One bottom hole sample was dumped on location. 3 sample bottles collected from the bottom hole sampler (samples labelled DST #2 BHS) were invert.

DRILLSTEM TEST

DRILLSTEM TEST No. 3

Date: March 12-13, 1999

Formation: Mattson

Interval: 1819m to 1848m

Test type: Inflate Straddle

Packers: 178mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 166.0mm ID: 71.0mm

Testing Company: Baker Oil Tools/Delta P Test Corp.

PRESSURES:		Times:	
IH:	17798 kPa		
IPF:	534 kPa	PF:	10 min
FPF:	855 kPa		
ISI:	15044 kPa	ISI:	60 min
IF:	740 kPa	VO:	120 min
FF:	2128 kPa		
FSI:	16525 kPa	FSI:	240 min
FH:	17797 kPa	BHT:	61.9 C

Results:

Flow comments: PF: WAB increasing to SAB in 30 sec. GTS in 6.5 minutes. Lazy 3m flare through a 6.35mm (0.25") choke.
VO: WAB increasing to SAB in 10 sec. GTS immediately. Lazy 1.5m flare. Changed choke to 3.175mm (0.125"). Lazy 1.5m flare. 60 kPa pressure at the floor manifold indicated a flow of 214m3/day (7557ft3/day).

Recovery: 200m of fluid (Top 100m was gassy invert. Bottom 100 metres was gassy water cut invert. Sample caught at very top of tool was salty water (34000ppm Cl)

DRILLSTEM TEST

DRILLSTEM TEST No. 3

Test comments: Delta P real time tool signal was lost just prior to PF. The signal was regained at the start of the FSI.
1 invert sample (sample 3-MT) was collected from mud tank prior to running test. Gas bomb 11293 was collected during PF. Gas bomb 20129 was collected at the VO. 5 samples of the fluid recovery were taken. Sample 3-A: taken at the top of the recovery column at 200m was gassy invert. Sample 3-B: taken at at the 175m level of the fluid recovery was gassy invert. Sample 3-C: taken at 100m was gassy water cut invert. Sample 3--D: taken at 25m from the tool was gassy water cut invert. Sample 3-E: taken just at top of tool was water with a salinity of 34000ppm Cl. 2 sample bottles (labelled 3-BHS) containing contents of 1 emptied bottom hole sampler. 1 bottom hole sampler.

DRILLSTEM TEST

DRILLSTEM TEST No. 4

Date: March 13-14, 1999

Formation: Mattson

Interval: 1781m to 1804.5m

Test type: Inflate Straddle

Packers: 178mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	17494 kPa		
IPF:	253 kPa	PF:	10 min
FPF:	338 kPa		
ISI:	763 kPa	ISI:	60 min
IF:	239 kPa	VO:	180 min
FF:	297 kPa		
FSI:	2391 kPa	FSI:	360 min
FH:	17449 kPa	BHT:	61.7 C

Results:

Flow comments: PF: WAB increasing to FAB in 10 minutes. NGTS.
VO: Strong initial surge. Vented. WAB increasing to SAB after 150 min. NGTS.

Recovery: 10M of gassy invert.

Test comments: Test indicates a low permeability gas reservoir.
Collected 1 invert drilling fluid sample (sample 4-MT) prior to running test. Collected 2 recovery samples (sample 4-A & sample 4-B) from top of tool.

DRILLSTEM TEST

DRILLSTEM TEST No. 5

Date: March 14, 1999

Formation: Chinkeh

Interval: 1405m to 1429m

Test type: Inflate Straddle

Packers: 178mm

Hole size: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	13895 kPa		
IPF:	166 kPa	PF:	10 min
FPF:	258 kPa		
ISI:	10900 kPa	ISI:	60 min
IF:	283 kPa	VO:	120 min
FF:	652 kPa		
FSI:	10903 kPa	FSI:	240 min
FH:	13813 kPa	BHT:	49.6 C

Results:

Flow comments: PF: VWAB steady throughout. NGTS.
VO: VWAB steady throughout.

Recovery: 45m of invert.

Test comments: Collected 1 mud tank sample (sample 5-MT) prior to running test. Collected 3 samples of fluid recovery. Sample 5-A was collected from top of 45m recovery column. Sample 5-B was from middle of fluid recovery column. Sample 5-C was collected from bottom of recovery column. 2 bottom hole samplers.

DRILLSTEM TEST

DRILLSTEM TEST No. 6

Date: March 15-16, 1999

Formation: Fantasque

Interval: 1668m to 1698m

Test type: Inflate Straddle

Packers: 178mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	16389 kPa		
IPF:	610 kPa	PF:	10 min
FPF:	1075 kPa		
ISI:	15104 kPa	ISI:	60 min
IF:	1239 kPa	VO:	120 min
FF:	5134 kPa		
FSI:	15071 kPa	FSI:	240 min
FH:	16380 kPa	BHT:	60.6 C

Results:

Flow comments: PF: WAB increasing to SAB in 2.5 min. Increasing throughout. NGTS.
VO: WAB increasing to SAB in 2 min. GTS in 30 min. Lazy 1m flare. TSTM.

Recovery: 490m of fluid recovery (90 m of gassy invert, 200m of gassy invert slightly contaminated with salt water, and 200m of gassy salt water.).

DRILLSTEM TEST

DRILLSTEM TEST No. 6

Test comments: Collected 1 sample (sample 6-MT) of drilling fluid from mud tank prior to running test. Collected 1 gas bomb (ser.no. 18796) at 60 min. into VO. Collected 6 samples of reverse circulated recovery. Sample 6-A: collected from the top of the 490m of fluid recovery was gassy invert. Sample 6-B: collected from the 400m level of the fluid recovery was gassy contaminated invert. Sample 6-C: collected at 300m was gassy contaminated invert. Sample 6-D: collected at 200m level of recovery was gas cut salt water. Sample 6-E: collected at 100m was gas cut salt water. Sample 6-F was collected at the top of the tool and consisted of gassy salt water (50000ppm Cl). 2 bottom hole samplers.
All samples shipped to AGAT Labs, Fort St. John, via Baker Oil Tools tester Ken Willis.

DRILLSTEM TEST

DRILLSTEM TEST No. 7

Date: March 20-21, 1999

Formation: Mattson

Interval: 2028m to 2046m

Test type: Bottom Hole Inflate

Packers: 177mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	20228 kPa		
IPF:	452 kPa	PF:	10 min
FPF:	611 kPa		
ISI:	2732 kPa	ISI:	60 min
IF:	376 kPa	VO:	120 min
FF:	735 kPa		
FSI:	4693 kPa	FSI:	240 min
FH:	19863 kPa	BHT:	68.0 C

Results:

Flow comments: PF: WAB increasing to SAB in 30 sec. then decreasing to FAB to end of PF. NGTS.
Note: Tool opened 5 times and skidded 2 metres before 10 min. PF. No mud was lost.
VO: WAB increasing to SAB in 30 sec. for 4 min. then decreasing to FAB to end of VO. NGTS.

Recovery: 62.0m of gasified invert.

Test comments: Collected 1 sample (sample 7-MT) of drilling fluid from mud tank prior to running test. Collected 4 samples of fluid recovery. Sample 7-01: collected at 45m level of recovery column; Sample 7-02: collected at 27m level of recovery column; Sample 7-03: collected at 9m level of recovery column; Sample 7-04: collected at top of tool.

DRILLSTEM TEST

DRILLSTEM TEST No. 8

Date: March 21, 1999

Formation: Mattson

Interval: 1955m to 1965m

Test type: Inflate Straddle

Packers: 177mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 63.5mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	19218 kPa		
IPF:		PF:	
FPF:			
ISI:		ISI:	
IF:		VO:	
FF:			
FSI:		FSI:	
FH:	19199 kPa	BHT:	63.1 C.

Results:

Flow comments:

Recovery:

Test comments: DST #8 was declared a misrun as unable to inflate packer. Inspection when out of hole showed blown bottom packer.

DRILLSTEM TEST

DRILLSTEM TEST No. 9

Date: March 22, 1999

Formation: Mattson

Interval: 1955m to 1965m

Test type: Inflate Straddle

Packers: 177mm

Hole: 222mm

Drill Pipe: OD: 114.0mm ID: 83.3mm

Collars: OD: 165.0mm ID: 71.0mm

Testing Company: Baker Oil Tools

PRESSURES:		Times:	
IH:	19218 kPa		
IPF:	581 kPa	PF:	8 min
FPF:	2811 kPa		
ISI:		ISI:	
IF:		VO:	
FF:			
FSI:		FSI:	
FH:	19207 kPa	BHT:	

Results:

Flow comments: PF: WAB. NGTS. Lost packer seat after 8 min.

Recovery: 265m of fluid recovery (100m of gasified invert; 50m of water cut gassy invert; 115m of salty water (18000ppm Cl)

Test comments: Test declared a misrun as packers blew 8 min. into PF. Collected 1 sample (sample 9-MT) of invert drilling fluid from mud tank prior to running test. Collected 6 samples of reverse circulated recovery. Sample 9-01: collected at the top of the recovery column at 265m was gasified invert; Sample 9-02: collected at 200m level was gasified invert; Sample 9-03: collected at 165m was water cut invert; Sample 9-04: collected at 155m was salty water; Sample 9-05: collected at 75m was salty water; Sample 9-06: collected at top of tool was salty water. 2 bottom hole samplers. All samples sent to AGAT Labs, Fort St John, via Baker Oil Tools tester Marc Sampietro.

DETAILED CORE DESCRIPTION

Core No. 1 Interval: 1333.0m - 1351.2m Cut: 18.2m
Depth (m) Formation: Garbutt Recovered: 18.2m

Depth (m)	
1333.0 - 1333.6	**SHALE** - dark gray, very silty and grading to very argillaceous siltstone, non calcareous, very carbonaceous;
1333.6 - 1333.67	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, trace mica, non calcareous, thinly laminated, moderately argillaceous, very silty, trace glauconite;
1333.67 - 1333.72	**SHALE** - as above, very silty, very carbonaceous;
1333.72 - 1334.47	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, trace mica, non to moderately calcareous, rare pinpoint porosity to no visible porosity, very silty, scattered glauconite;
1334.47 - 1335.27	**SHALE** - dark gray, very silty in part, occasional (2) sandstone interbeds (4cm), no shows, tight, very silty, very carbonaceous;
1335.27 - 1335.87	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, slightly argillaceous in part, tight, very silty;
1335.87 - 1336.77	**SHALE** - as above, interbedded with very fine grained very carbonaceous slightly calcareous sandstone laminae, very silty, very carbonaceous;
1336.77 - 1337.07	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, slightly argillaceous in part, tight, very silty;
1337.07 - 1339.4	**SHALE** - dark gray, as above, grading to argillaceous siltstone, very silty, very carbonaceous;
1339.4 - 1339.5	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, slightly argillaceous in part, tight, very silty
1339.5 - 1351.2	**SHALE** - very dark gray, poker chip partings, very rare sandstone laminae, occasionally silty, rare slickensides, rare fossils (Ammonite?, fish skeletal fragments), very carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
0 - 20	**CLAYSTONE** - medium gray, occasional very fine to coarse quartz grains, very soft, abundant aragonite, moderately silty;
20 - 25	**SANDSTONE** - medium gray to medium dark gray, very fine grained, subangular to angular, well sorted, abundant aragonite, trace Pelecypod, no shows, no visible porosity, moderately silty, moderately calcareous;
25 - 30	**SILTSTONE** - medium dark gray, non calcareous, abundant aragonite, tight, very argillaceous;
30 - 35	**SANDSTONE** - medium gray to medium dark gray, very fine grained, subangular to angular, well sorted, abundant aragonite, trace Pelecypod, no shows, no visible porosity, moderately silty, moderately calcareous;
35 - 40	**CLAYSTONE** - as above, abundant aragonite, very fine to finely arenaceous in part, very silty;
40 - 45	**SILTSTONE** - as above, very fine grained in part, very argillaceous;
45 - 65	**CLAYSTONE** - medium dark gray, scattered aragonite, soft, very silty;
65 - 90	**CLAYSTONE** - soft to moderately consolidated, as above, very silty, rare pyrite;
90 - 95	**SANDSTONE** - greenish gray, fine grained to medium grained, subangular to subrounded, well sorted, rare coarse grains, clay supported in part and grading to sandy claystone in part, no shows, tight, very argillaceous, slightly calcareous;
95 - 100	**CLAYSTONE** - as above, very fine to medium grained in part, trace rounded varicolored chert granules and pebbles, very silty;
100 - 105	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, rare silt size pyrite, moderately calcareous in part, rare rounded chert pebbles, no shows, no visible porosity, very silty, very argillaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
105 - 109	**CLAYSTONE** - medium dark gray, as above, rare trace rounded chert pebbles, grading to medium gray shale;
109 - 149	**CLAYSTONE** - medium gray to medium dark gray, non calcareous, soft, very silty;
149 - 166	**CLAYSTONE** - medium gray to medium dark gray, non calcareous, soft, very silty, increasingly indurated and shaley;
166 - 169	**CONGLOMERATE** - varicolored, very coarse grained, rounded, poorly sorted, trace intergranular porosity, clay matrix in part, medium grained sand matrix in part, siliceous cemented, slightly pyritic, kaolin infilling in part;
169 - 179	**SANDSTONE** - medium gray, very fine grained, subangular to angular, well sorted, occasionally fine grained, siltstone laminae, non calcareous, rare conglomeritic streaks, very silty, very argillaceous;
179 - 183	**SILTSTONE** - medium dark gray, non calcareous, grading to silty shale, trace medium brown gray slightly waxy shale laminae, very argillaceous;
183 - 186	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained and some coarse grained, angular to subrounded, moderately sorted, no fluorescence, no cut, quartz, chert, rock fragments, trace varicolored rounded chert granules and pebbles, kaolin infilling in part, intergranular porosity, slightly argillaceous;
186 - 212	**CONGLOMERATE** - light medium gray, occasionally dark gray, poorly sorted, no fluorescence, no cut, varicolored rounded chert granules and pebbles in a medium to coarse grained sand matrix, slightly siliceous cemented, intergranular porosity in part, slightly pyritic;
212 - 214	**SANDSTONE** - medium gray, fine grained to coarse grained, subangular to angular, moderately sorted, no shows, tight, very argillaceous, moderately silty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
214 - 219	**CONGLOMERATE** - light medium gray, occasionally dark gray, poorly sorted, no fluorescence, no cut, varicolored rounded chert granules and pebbles in a medium to coarse grained sand matrix, slightly siliceous cemented, intergranular porosity in part, slightly pyritic;
219 - 220	**SILTSTONE** - medium gray, as above, non calcareous, very argillaceous;
220 - 224	**SANDSTONE** - medium gray, fine grained to medium grained, subangular to angular, well sorted, grading to very argillaceous siltstone, no shows, no visible porosity, very silty, very argillaceous;
224 - 227	**SHALE** - medium light gray, medium gray to medium dark gray, soft, non calcareous, silty in part, scattered carbonaceous material;
227 - 228	**SILTSTONE** - medium gray, as above, very argillaceous;
228 - 229	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, non calcareous, micaceous, moderately silty, very argillaceous;
229 - 230	**SILTSTONE** - medium gray, as above, very argillaceous;
230 - 232	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, non calcareous, micaceous, moderately silty, very argillaceous;
232 - 236	**SILTSTONE** - medium gray, as above, very argillaceous;
236 - 240	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, non calcareous, micaceous, moderately silty, very argillaceous;
240 - 243	**SHALE** - light greenish gray, light medium gray, micromicaceous, non calcareous, moderately bentonitic;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
243 - 246	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subangular to angular, well sorted, moderately consolidated, micaceous, kaolin infilling in part, no shows, very fine to fine grained and silty in part, scattered intergranular porosity, slightly argillaceous;
246 - 247	**SILTSTONE** - medium gray, as above, very argillaceous;
247 - 252	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subangular to angular, well sorted, moderately consolidated, micaceous, kaolin infilling in part, no shows, very fine to fine grained and silty in part, scattered intergranular porosity, slightly argillaceous;
252 - 253	**SILTSTONE** - medium gray, as above, very argillaceous;
253 - 259	**SANDSTONE** - medium light gray salt and pepper, medium grained to coarse grained, subangular to angular, well sorted, no fluorescence, no cut, conglomeritic in part, slightly siliceous cemented, kaolin infilling in part, intergranular porosity;
259 - 267	**CONGLOMERATE** - light medium gray, poorly sorted, no fluorescence, no cut, rounded varicolored chert pebbles in matrix of medium to coarse grained sand, intergranular porosity;
267 - 272	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, micaceous, non calcareous, very silty and grading to siltstone, very argillaceous;
272 - 275	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, no visible porosity, very silty, very argillaceous;
275 - 280	**SILTSTONE** - medium light gray to medium dark gray, no shows, tight, very argillaceous;
280 - 286	**SILTSTONE** - medium dark gray, as above, very shaley, very argillaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
286 - 291	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, no shows, tight, very silty, very argillaceous;
291 - 292	**SANDSTONE** - medium light gray, very fine grained to fine grained, subangular to angular, well sorted, kaolin infilling in part, very silty, very argillaceous;
292 - 294	**SILTSTONE** - medium dark gray, as above, very shaley, very argillaceous;
294 - 298	**SHALE** - medium brown gray, carbonaceous material, moderately bentonitic, moderately silty;
298 - 299	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, micaceous, no shows, tight, very silty, very argillaceous;
299 - 300	**SILTSTONE** - medium dark gray, as above, very shaley, very argillaceous;
300 - 301	**SHALE** - medium brown gray, carbonaceous material, moderately bentonitic, moderately silty;
301 - 302	**SILTSTONE** - medium dark gray, as above, very shaley, very argillaceous;
302 - 304	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, kaolin infilling in part, micaceous, no shows, no visible porosity, very silty, very argillaceous;
304 - 310	**SILTSTONE** - medium light gray salt and pepper to medium light gray, very finely arenaceous, tight, very argillaceous;
310 - 315	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, micaceous, kaolin infilling in part, non to slightly calcareous, no shows, tight, very silty, very argillaceous;
315 - 322	**SILTSTONE** - medium dark gray, as above, very argillaceous, very shaley;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
322 - 323	**SHALE** - as above;
323 - 324	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, no shows, tight, very silty, very argillaceous;
324 - 326	**SHALE** - as above;
326 - 330	**SANDSTONE** - light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, no fluorescence, no cut, abundant kaolin infilling in part, very calcareous cemented, trace dark gray carbonaceous shale laminae, trace intergranular porosity;
330 - 333	**COAL** - black, vitreous;
333 - 334	**SHALE** - dark gray, as above, non calcareous, moderately carbonaceous;
334 - 335	**SILTSTONE** - medium dark gray, as above, very argillaceous;
335 - 337	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, w sorted, abundant kaolin in part, no shows, no visible porosity, very argillaceous, moderately silty;
337 - 340	**SILTSTONE** - medium dark gray, as above, very argillaceous;
340 - 344	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, as above, trace carbonaceous laminae, very argillaceous, moderately silty;
344 - 346	**SHALE** - dark gray, as above, non calcareous, moderately carbonaceous;
346 - 349	**SILTSTONE** - as above, scattered carbonaceous material, light gray bentonitic shale and dark gray shaley carbonaceous laminae, very argillaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
349 - 351	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, no fluorescence, no cut, moderately calcareous cemented in part, kaolin infilling in part, micaceous, occasional carbonaceous siltstone laminae, trace intergranular porosity;
351 - 352	**SILTSTONE** - as above, scattered carbonaceous material, light gray bentonitic shale and dark gray shaley carbonaceous laminae, very argillaceous;
352 - 362	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, no fluorescence, no cut, moderately calcareous cemented in part, kaolin infilling in part, as above, rare trace intergranular porosity;
362 - 363	**SILTSTONE** - as above, scattered carbonaceous material, light gray bentonitic shale and dark gray shaley carbonaceous laminae, very argillaceous;
363 - 364	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
364 - 367	**SANDSTONE** - very fine grained, subangular to angular, well sorted, scattered carbonaceous material, no shows, tight, very silty;
367 - 375	**SILTSTONE** - medium dark gray, scattered carbonaceous material, micromicaceous, non calcareous, very argillaceous;
375 - 377	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, very argillaceous, very silty;
377 - 382	**SILTSTONE** - medium dark gray, dark gray in part, micromicaceous, dark gray and carbonaceous in part, very finely arenaceous in part, non calcareous, no shows, tight, very argillaceous;
382 - 383	**SHALE** - as above, non calcareous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
383 - 386	**SILTSTONE** - medium dark gray, dark gray in part, micromicaceous, dark gray and carbonaceous in part, very finely arenaceous in part, non calcareous, no shows, tight, very argillaceous;
386 - 387	**SHALE** - as above;
387 - 399	**SILTSTONE** - as above, very argillaceous, slightly carbonaceous;
399 - 406	**SILTSTONE** - as above, very finely arenaceous in part, very argillaceous, slightly carbonaceous;
406 - 407	**SANDSTONE** - medium light gray salt and pepper, very fine grained, subangular to angular, well sorted, non calcareous, no shows, tight, very argillaceous, very silty;
407 - 411	**SILTSTONE** - as above, very finely arenaceous in part, very argillaceous, slightly carbonaceous;
411 - 416	**SHALE** - dark gray, blocky, micromicaceous in part, non calcareous, moderately silty;
416 - 418	**SHALE** - dark gray, blocky, non calcareous, micromicaceous in part;
418 - 423	**SANDSTONE** - medium light gray, very fine grained to fine grained, subangular to angular, well sorted, kaolin infilling, slightly calcareous in part, interbedded with siltstone as above, no observable porosity;
423 - 425	**SILTSTONE** - medium dark gray, as above, very argillaceous;
425 - 426	**SANDSTONE** - medium light gray, light medium gray, very fine grained to fine grained, subangular to angular, moderately sorted, no fluorescence, no cut, trace medium to coarse grained, trace chert pebbles, slightly to moderately calcareous cemented, slightly siliceous cemented, intergranular porosity;
426 - 428	**SHALE** - as above;
428 - 435	**SILTSTONE** - as above, very finely arenaceous in part;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
435 - 439	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, no shows, very silty;
439 - 445	**SILTSTONE** - as above, very finely arenaceous in part;
445 - 448	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, very silty;
448 - 449	**SILTSTONE** - as above, very finely arenaceous in part;
449 - 450	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, very silty;
450 - 453	**SILTSTONE** - as above, very finely arenaceous in part;
453 - 454	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, very silty;
454 - 456	**SILTSTONE** - as above, very finely arenaceous in part;
456 - 463	**SANDSTONE** - medium light gray, very fine grained to fine grained, subangular to angular, well sorted, no fluorescence, no cut, kaolin infilling in part, slightly siliceous cemented, moderately to very argillaceous, micaceous in part, trace carbonaceous laminae, trace chert pebbles in sample, occasional streaks of slightly siliceous cemented fine grained sandstone with intergranular porosity, moderately silty;
463 - 473	**SILTSTONE** - as above, very argillaceous;
473 - 475	**SANDSTONE** - medium light gray to light medium gray, very fine grained to fine grained, subangular to angular, well sorted, occasional carbonaceous laminae, very silty in part, no visible porosity, very argillaceous;
475 - 477	**SILTSTONE** - as above, very argillaceous;
477 - 480	**SANDSTONE** - medium light gray to light medium gray, very fine grained to fine grained, subangular to angular, well sorted, occasional carbonaceous laminae, very silty in part, no visible porosity, very argillaceous;
480 - 482	**SILTSTONE** - as above, very argillaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
482 - 483	**SANDSTONE** - medium light gray to light medium gray, very fine grained to fine grained, subangular to angular, well sorted, occasional carbonaceous laminae, very silty in part, no visible porosity, very argillaceous;
483 - 492	**SILTSTONE** - medium dark gray, as above, with interbeds of light medium gray very fine grained very silty very argillaceous sand, very argillaceous;
492 - 494	**SANDSTONE** - medium light gray to light medium gray, very fine grained to fine grained, subangular to angular, well sorted, very to moderately argillaceous, kaolin infilling in part, as above, very silty;
494 - 501	**SILTSTONE** - medium dark gray, as above, with interbeds and laminae of very fine to fine grained very to moderately argillaceous very silty sand, very argillaceous;
501 - 503	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
503 - 504	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, non calcareous, very argillaceous, very silty;
504 - 508	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
508 - 509	**SHALE** - medium dark gray, as above, very silty;
509 - 510	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, non calcareous, very argillaceous, very silty;
510 - 519	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
519 - 527	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, moderately dolomitic cemented, moderately silty;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
527 - 531	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
531 - 536	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, non calcareous, tight, moderately argillaceous, moderately silty;
536 - 541	**SILTSTONE** - medium dark gray, as above, trace carbonaceous material, with laminae of very fine grained moderately argillaceous very silty sandstone, very argillaceous;
541 - 542	**SHALE** - medium dark gray, non calcareous, very silty;
542 - 544	**SILTSTONE** - medium dark gray, as above, very argillaceous;
544 - 553	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, as above, slightly calcareous in part, rare glauconite, trace carbonaceous material, with siltstone interbeds, tight, very argillaceous, very silty;
553 - 560	**SILTSTONE** - medium dark gray, grading to silty shale in part, with non to slightly calcareous very fine grained sandstone laminae, very argillaceous;
560 - 564	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, as above, slightly calcareous in part, rare glauconite, trace carbonaceous material, with siltstone interbeds, tight, very argillaceous, very silty;
564 - 570	**SHALE** - dark gray, blocky, abundant silty laminae, soft, non calcareous, very silty;
570 - 573	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, as above, slightly calcareous in part, rare glauconite, trace carbonaceous material, with siltstone interbeds, tight, very argillaceous, very silty;
573 - 580	**SILTSTONE** - dark gray, grading to silty shale, with sandstone laminae, tight, very argillaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
580 - 583	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, as above, slightly calcareous in part, rare glauconite, trace carbonaceous material, with siltstone interbeds, tight, very argillaceous, very silty;
583 - 586	**SILTSTONE** - dark gray, grading to silty shale, with sandstone laminae, tight, very argillaceous;
586 - 591	**SHALE** - dark gray, non calcareous, very silty;
591 - 592	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, non to slightly calcareous, tight, very argillaceous, very silty;
592 - 594	**SHALE** - dark gray, non calcareous, very silty;
594 - 599	**SILTSTONE** - grading to silty shale, with thin very fine grained sandstone interbeds, very argillaceous;
599 - 613	**SILTSTONE** - medium dark gray, grading to silty shale, very fine grained in part, very argillaceous;
613 - 618	**SHALE** - dark gray, trace fish scales, grading to shaley siltstone, non calcareous, very silty;
618 - 620	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, non to very slightly calcareous, tight, very argillaceous, very silty;
620 - 624	**SILTSTONE** - medium dark gray, grading to silty shale, very fine grained in part, very argillaceous;
624 - 628	**SHALE** - dark gray, trace fish scales, grading to shaley siltstone, non calcareous, very silty;
628 - 637	**SILTSTONE** - medium dark gray, grading to silty shale, very fine grained in part, very argillaceous;
637 - 643	**SHALE** - dark gray, trace fish scales, grading to shaley siltstone, non calcareous, very silty;
643 - 646	**SILTSTONE** - medium dark gray to dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
646 - 647	**SHALE** - as above;
647 - 659	**SILTSTONE** - medium dark gray to dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;
659 - 662	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
662 - 665	**SILTSTONE** - dark gray, trace fish scales, shaley, as above, non calcareous, very argillaceous, moderately carbonaceous;
665 - 682	**SILTSTONE** - dark gray, non calcareous, very argillaceous, moderately carbonaceous;
682 - 683	**SILTSTONE** - as above, and medium brown slightly dolomitic siltstone;
683 - 685	**SHALE** - as above;
685 - 688	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty;
688 - 693	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
693 - 702	**SILTSTONE** - light medium gray to medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
702 - 713	**SILTSTONE** - as above, shaley in part, very argillaceous, moderately carbonaceous;
713 - 719	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;
719 - 722	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
722 - 724	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
724 - 725	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
725 - 727	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;
727 - 729	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
729 - 731	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;
731 - 733	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
733 - 735	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, slightly calcareous in part, grading to siltstone, tight, very argillaceous, very silty, moderately carbonaceous;
735 - 736	**SILTSTONE** - light medium gray, as above, very argillaceous, moderately carbonaceous;
736 - 743	**SILTSTONE** - light medium gray, grading to very fine grained very silty very argillaceous sandstone, very argillaceous;
743 - 745	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;
745 - 747	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
747 - 748	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, moderately calcareous;
748 - 750	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
750 - 752	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, moderately calcareous;
752 - 753	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;
753 - 756	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
756 - 757	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, very argillaceous, very silty, moderately calcareous, trace glauconite;
757 - 759	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
759 - 760	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;
760 - 762	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
762 - 764	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, very argillaceous, very silty, moderately calcareous, trace glauconite;
764 - 765	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;
765 - 768	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, very argillaceous, very silty, moderately calcareous, trace glauconite;
768 - 770	**SILTSTONE** - light medium gray, grading to very fine grained silty sand, moderately argillaceous, very sandy, moderately calcareous;
770 - 772	**SHALE** - dark gray, non calcareous, moderately silty, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
772 - 780	**SILTSTONE** - light medium gray, grading to very fine grained silty sandstone, moderately argillaceous, moderately calcareous;
780 - 781	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, moderately calcareous;
781 - 782	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;
782 - 785	**SILTSTONE** - light to medium dark gray, carbonaceous laminae, grading to very silty shale, very argillaceous, moderately carbonaceous;
785 - 786	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;
786 - 787	**SILTSTONE** - light to medium dark gray, carbonaceous laminae, grading to very silty shale, very argillaceous, moderately carbonaceous;
787 - 793	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, moderately calcareous;
793 - 795	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;
795 - 800	**SILTSTONE** - light to medium dark gray, carbonaceous laminae, grading to very silty shale, very argillaceous, moderately carbonaceous;
800 - 803	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;
803 - 806	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
806 - 808	**SHALE** - dark gray, grading to very argillaceous silt, very silty, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
808 - 814	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
814 - 816	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
816 - 818	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
818 - 819	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
819 - 820	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
820 - 822	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
822 - 828	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
828 - 832	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
832 - 837	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
837 - 841	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
841 - 845	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
845 - 846	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
846 - 849	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
849 - 850	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
850 - 857	**SILTSTONE** - medium dark gray, trace very fine grained moderately calcareous glauconitic sandstone laminae, very argillaceous, moderately carbonaceous;
857 - 861	**SILTSTONE** - as above, increasingly shaley, very argillaceous, moderately carbonaceous;
861 - 864	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
864 - 865	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;
865 - 866	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
866 - 867	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
867 - 868	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
868 - 869	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
869 - 871	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
871 - 875	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, slightly calcareous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
875 - 878	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
878 - 879	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
879 - 883	**SILTSTONE** - medium dark gray, as above, trace very fine grained sandstone laminae with dull yellow fluorescence and slow bluish cut, tight, very argillaceous;
883 - 891	**SILTSTONE** - medium dark gray, non to slightly calcareous, very finely arenaceous, very argillaceous, moderately carbonaceous, slightly calcareous;
891 - 892	**SHALE** - dark gray, soft, non calcareous, very silty, moderately carbonaceous;
892 - 895	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, tight, very argillaceous, very silty, trace glauconite;
895 - 901	**SILTSTONE** - medium dark gray, very calcareous streaks, trace very fine grained sandstone laminae, very shaley, very argillaceous, moderately carbonaceous;
901 - 903	**SANDSTONE** - medium dark gray, very fine grained, subangular to angular, well sorted, grading to very finely arenaceous siltstone in part, very argillaceous, very silty, moderately carbonaceous;
903 - 904	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
904 - 908	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;
908 - 923	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
923 - 924	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
924 - 926	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
926 - 929	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
929 - 933	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
933 - 934	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
934 - 935	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;
935 - 937	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
937 - 938	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
938 - 940	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
940 - 945	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;
945 - 946	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
946 - 947	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
947 - 949	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, tight, very argillaceous, very silty, moderately carbonaceous;
949 - 951	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
951 - 957	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;
957 - 958	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
958 - 965	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;
965 - 966	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
966 - 970	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;
970 - 971	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
971 - 974	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;
974 - 975	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
975 - 981	**SILTSTONE** - medium dark gray, non calcareous, very shaley in part, very argillaceous, moderately carbonaceous;
981 - 988	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, trace mica, very calcareous cemented, no shows, no visible porosity, moderately argillaceous, very silty, trace glauconite;
988 - 994	**SANDSTONE** - as above, very fine grained, subangular to angular, well sorted, trace glauconite, very silty and grading to very finely arenaceous siltstone, tight, moderately argillaceous, slightly calcareous;
994 - 998	**SILTSTONE** - medium dark gray, as above, rare very fine grained very silty laminae, very argillaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
998 - 1005	**SANDSTONE** - as above, very fine grained, subangular to angular, well sorted, trace glauconite, very silty and grading to very finely arenaceous siltstone, tight, moderately argillaceous, slightly calcareous;
1005 - 1014	**SILTSTONE** - as above, very finely arenaceous in part and very fine grained sandstone laminae and interbeds, very argillaceous, moderately carbonaceous;
1014 - 1015	**SANDSTONE** - as above, subangular to angular, well sorted, non calcareous, tight, very argillaceous, very silty;
1015 - 1018	**SILTSTONE** - medium dark gray, occasional very fine grained sandstone laminae, very argillaceous, moderately carbonaceous;
1018 - 1020	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, no shows, tight, very argillaceous, very silty;
1020 - 1021	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1021 - 1024	**SILTSTONE** - medium dark gray, occasional very fine grained sandstone laminae, very argillaceous, moderately carbonaceous;
1024 - 1025	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1025 - 1038	**SILTSTONE** - medium dark gray, occasional very fine grained very silty moderately calcareous sandstone laminae, very argillaceous, moderately carbonaceous;
1038 - 1040	**SILTSTONE** - as above, interbed with dark gray moderately carbonaceous non calcareous shale, very argillaceous, moderately carbonaceous;
1040 - 1041	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately silty, moderately carbonaceous;
1041 - 1042	**SILTSTONE** - as above, very argillaceous, moderately argillaceous, moderately sandy;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1042 - 1043	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately silty, moderately carbonaceous;
1043 - 1045	**SILTSTONE** - as above;
1045 - 1046	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1046 - 1050	**SILTSTONE** - as above;
1050 - 1051	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1051 - 1056	**SILTSTONE** - as above;
1056 - 1061	**SILTSTONE** - as above, very finely arenaceous, very argillaceous, moderately carbonaceous;
1061 - 1063	**SHALE** - dark gray, blocky, moderately silty in part, non calcareous, moderately carbonaceous;
1063 - 1064	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, rare glauconite, non calcareous, tight, moderately argillaceous, very silty;
1064 - 1065	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous, moderately sandy;
1065 - 1068	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, no shows, tight, moderately argillaceous, very silty, moderately calcareous;
1068 - 1069	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous, moderately sandy;
1069 - 1070	**SHALE** - as above, moderately carbonaceous;
1070 - 1071	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, no shows, tight, moderately argillaceous, very silty, moderately calcareous;
1071 - 1072	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous, moderately sandy;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1072 - 1075	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, no shows, tight, moderately argillaceous, very silty, moderately calcareous;
1075 - 1079	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
1079 - 1082	**SANDSTONE** - light medium gray to medium gray, very fine grained, subangular to angular, well sorted, trace to moderately glauconitic, non calcareous, tight, very argillaceous, very silty;
1082 - 1084	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
1084 - 1085	**SHALE** - as above, moderately carbonaceous;
1085 - 1090	**SILTSTONE** - medium dark gray to dark gray, as above, very argillaceous, moderately carbonaceous;
1090 - 1093	**SILTSTONE** - increasingly argillaceous and shaley, moderately carbonaceous;
1093 - 1095	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1095 - 1096	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous;
1096 - 1099	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, non to moderately calcareous cemented, tight, moderately argillaceous, very silty;
1099 - 1101	**SILTSTONE** - as above, very argillaceous, moderately carbonaceous;
1101 - 1105	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
Scatter	1105m Sample 1099m Log

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1105 - 1118	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no fluorescence, slow bluish cut, trace glauconite, non to moderately calcareous, no visible porosity, very silty, slightly carbonaceous;
1118 - 1119	**SILTSTONE** - medium dark gray, very fine, arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1119 - 1121	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1121 - 1122	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1122 - 1124	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1124 - 1126	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1126 - 1128	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1128 - 1131	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1131 - 1133	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1133 - 1138	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no fluorescence, very slow bluish cut, trace glauconite, slightly calcareous, no visible porosity, very argillaceous, very silty;
1138 - 1140	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1140 - 1142	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1142 - 1144	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1144 - 1147	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, increasingly silty and grading to siltstone, very argillaceous;
1147 - 1151	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1151 - 1152	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, increasingly silty and grading to siltstone, very argillaceous
1152 -1153	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1153 - 1156	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, increasingly silty and grading to siltstone, very argillaceous;
1156 - 1158	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1158 - 1159	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1159 - 1161	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1161 - 1163	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1163 - 1166	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no fluorescence, very slow bluish cut, trace glauconite, slightly calcareous, no visible porosity, very argillaceous, very silty;
1166 - 1167	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1167 - 1168	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1168 - 1169	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, no fluorescence, very slow bluish cut, trace glauconite, slightly calcareous, no visible porosity, very argillaceous, very silty;
1169 - 1170	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1170 - 1172	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1172 - 1174	**SANDSTONE** - very fine grained, subangular to angular, well sorted, increasingly silty and grading to siltstone, very argillaceous;
1174 - 1175	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1175 - 1177	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;
1177 - 1178	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1178 - 1179	**SHALE** - dark gray, blocky, occasionally very finely arenaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1179 - 1183	**SILTSTONE** - medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1183 - 1191	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, trace glauconite, no shows, tight, moderately argillaceous, very silty;
1191 - 1192	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1192 - 1193	**SHALE** - dark gray, as above, very silty in part, moderately carbonaceous;
1193 - 1196	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, trace dull yellow fluorescence, slow bluish cut, non to very slightly calcareous, trace glauconite, no visible porosity, moderately argillaceous, very silty;
1196 - 1197	**SHALE** - dark gray, as above, very silty in part, moderately carbonaceous;
1197 - 1198	**SANDSTONE** - gray brown, very fine grained, subangular to angular, well sorted, dull yellow fluorescence, streaming bluish white cut, non to moderately calcareous, no visible porosity, very argillaceous, very silty;
1198 - 1201	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, trace glauconite, no shows, tight, moderately argillaceous, very silty;
1201 - 1202	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1202 - 1213	**SANDSTONE** - light medium gray salt and pepper, medium gray, gray brown, very fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence and bluish white cut where gray brown, slightly calcareous in part, scattered glauconite, slightly to moderately argillaceous, no visible porosity to rare pinpoint porosity, very silty, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1213 - 1215	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1215 - 1216	**SANDSTONE** - light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, trace dull yellow fluorescence, slow bluish cut, non to very slightly calcareous, trace glauconite, no visible porosity, moderately argillaceous, very silty;
1216 - 1218	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1218 - 1220	**SANDSTONE** - gray brown, very fine grained, subangular to angular, well sorted, dull yellow fluorescence, streaming bluish white cut, non to moderately calcareous, no visible porosity, very argillaceous, very silty;
1220 - 1223	**SILTSTONE** - medium dark gray, non calcareous, very argillaceous, moderately carbonaceous;
1223 - 1232	**SANDSTONE** - light medium gray salt and pepper, medium gray, gray brown, very fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence and bluish white cut where gray brown, slightly calcareous in part, scattered glauconite, slightly to moderately argillaceous, no vis porosity to rare pinpoint porosity, very silty, moderately carbonaceous;
1232 - 1233	**SHALE** - dark gray, as above, very silty in part, moderately carbonaceous;
1233 - 1236	**SANDSTONE** - light medium gray to medium gray salt and pepper, very fine grained, subangular to angular, well sorted, as above, non visible porosity, moderately argillaceous, very silty;
Garbutt	1236m Sample 1235m Log
1236 - 1237	**SILTSTONE** - brown gray, dull yellow fluorescence, blue white cut, as above, tight, very argillaceous;
1237 - 1249	**SILTSTONE** - dark gray, shaley in part, very finely arenaceous in part, tight, very argillaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1249 - 1254	**SILTSTONE** - dark gray, very shaley in part, non calcareous, very argillaceous, moderately carbonaceous;
1254 - 1255	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1255 - 1256	**SILTSTONE** - dark gray, very shaley in part, non calcareous, very argillaceous, moderately carbonaceous;
1256 - 1257	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1257 - 1258	**SILTSTONE** - dark gray, very shaley in part, non calcareous, very argillaceous, moderately carbonaceous;
1258 - 1265	**SILTSTONE** - dark gray to medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1265 - 1266	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1266 - 1267	**SILTSTONE** - dark gray to medium dark gray, very finely arenaceous in part, non calcareous, very argillaceous, moderately carbonaceous;
1267 - 1269	**SANDSTONE** - medium dark gray to dark gray, very fine grained, subangular to angular, well sorted, grading to very finely arenaceous sand, tight, very argillaceous, very silty;
1269 - 1277	**SILTSTONE** - dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;
1277 - 1280	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
1280 - 1281	**SILTSTONE** - dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;
1281 - 1283	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
1283 - 1284	**SILTSTONE** - dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1284 - 1325	**SHALE** - dark gray, non calcareous, very silty, moderately carbonaceous;
1325 - 1330	**SILTSTONE** - dark gray, very shaley, non calcareous, very argillaceous, moderately carbonaceous;
1330 - 1333	**SANDSTONE** - light medium gray salt and pepper to medium gray, very fine grained, subangular to angular, well sorted, occasional dull yellow fluorescence with streaming milky white cut, slightly to moderately argillaceous, non to moderately calcareous, scattered carbonaceous material, rare pinpoint porosity, very silty, scattered glauconite;
1333 - 1351	**CORE #1 SEE DETAILED CORE DESCRIPTION**
1351 - 1359	**SHALE** - very dark gray, non calcareous, occasional laminae of medium gray to medium brown gray very fine grained very argillaceous silty sandstone, very carbonaceous;
1359 - 1375	**SHALE** - very dark gray, non calcareous, medium gray and silty in part, grading to very argillaceous silt, very carbonaceous;
1375 - 1406	**SHALE** - very dark gray, non calcareous, very carbonaceous;
1406 - 1410	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
Chinkeh	1410m Sample 1407m Log
1410 - 1413	**SANDSTONE** - medium gray salt and pepper, medium green gray, very fine grained to fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, slightly siliceous cemented, slightly dolomitic cemented, trace intergranular porosity, very silty, abundant glauconite;
1413 - 1414	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1414 - 1422	**SANDSTONE** - medium gray salt and pepper, medium green gray, very fine grained to fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, slightly siliceous cemented, slightly dolomitic cemented, trace intergranular porosity, very silty, abundant glauconite;
1422 - 1425	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
1425 - 1428	**SANDSTONE** - medium gray salt and pepper, medium green gray, very fine grained to fine grained, subangular to angular, well sorted, no apparent fluorescence, slow bluish cut, slightly siliceous cemented, slightly dolomitic cemented, trace intergranular porosity, very silty, abundant glauconite;
1428 - 1430	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, slightly siliceous cemented, slightly dolomitic cemented, cut as above, no visible porosity, very silty, scattered glauconite;
1430 - 1432	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
1432 - 1434	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, slightly siliceous cemented, increasingly dolomitic cemented, cut as above, no visible porosity, trace glauconite;
1434 - 1435	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
1435 - 1436	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, slightly siliceous cemented, slightly dolomitic cemented, cut as above, no visible porosity, very silty, scattered glauconite;
1436 - 1438	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1438 - 1440	**SANDSTONE** - medium gray salt and pepper, very fine grained, subangular to angular, well sorted, slightly siliceous cemented, slightly dolomitic cemented, cut as above, no visible porosity, very silty, scattered glauconite;
1440 - 1443	**SHALE** - very dark gray, non calcareous, very carbonaceous, occasionally silty;
1443 - 1452	**SANDSTONE** - medium light gray, light medium gray salt and pepper, very fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence, slow bluish cut, slightly to moderately dolomitic, rarely fine grained, no observable porosity, very silty;
1452 - 1453	**SHALE** - as above;
1453 - 1455	**SANDSTONE** - very fine grained, subangular to angular, well sorted, very silty, moderately dolomitic, occasional glauconite;
Triassic(?)	1455m Sample 1447m Log
1455 - 1456	**SHALE** - as above;
1456 - 1457	**SILTSTONE** - medium light gray to light medium gray, slightly argillaceous, very finely arenaceous in part, slightly carbonaceous in part;
1457 - 1458	**SANDSTONE** - very fine grained, subangular to angular, well sorted, very silty, moderately dolomitic, occasional glauconite;
1458 - 1462	**SILTSTONE** - medium dark gray, very dolomitic, moderately argillaceous;
1462 - 1464	**SHALE** - brown, blocky, very dolomitic;
1464 - 1468	**SILTSTONE** - medium dark gray, moderately dolomitic;
1468 - 1469	**SHALE** - brown, blocky, very dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1469 - 1470	**SANDSTONE** - medium brown gray, light medium gray, very fine grained to fine grained, subangular to angular, well sorted, trace dull yellow fluorescence with slow bluish cut, moderately to very dolomitic cemented, no visible porosity, very silty;
1470 - 1471	**SHALE** - brown, blocky, very dolomitic;
1471 - 1472	**SILTSTONE** - medium dark gray, moderately dolomitic;
1472 - 1473	**SHALE** - brown, blocky, very dolomitic;
1473 - 1474	**SANDSTONE** - medium brown gray, light medium gray, very fine grained to fine grained, subangular to angular, well sorted, trace dull yellow fluorescence with slow bluish cut, moderately to very dolomitic cemented, no visible porosity, very silty;
1474 - 1475	**SILTSTONE** - medium dark gray, moderately dolomitic;
1475 - 1476	**SANDSTONE** - medium brown gray, light medium gray, very fine grained to fine grained, subangular to angular, well sorted, trace dull yellow fluorescence with slow bluish cut, moderately to very dolomitic cemented, no visible porosity, very silty;
1476 - 1479	**SHALE** - brown, medium to medium dark gray, slightly to moderately dolomitic;
1479 - 1485	**SILTSTONE** - medium dark gray, occasional interbeds of very fine grained very dolomitic cemented sandstone with no fluorescence and slow bluish cut, very dolomitic;
1479 - 1485	**SILTSTONE** - medium dark gray, interbedded with brown and medium dark gray dolomitic shales, very argillaceous, moderately dolomitic;
1485 - 1488	**SILTSTONE** - medium dark gray, moderately dolomitic;
1488 - 1489	**SANDSTONE** - very fine grained, subangular to angular, well sorted, trace dull yellow fluorescence with slow bluish cut, scattered carbonaceous material, tight, very dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1489 - 1490	**SILTSTONE** - medium dark gray, moderately dolomitic;
1490 - 1491	**SHALE** - medium dark gray, slightly dolomitic, slightly silty, brown and moderately dolomitic in part;
1491 - 1493	**SILTSTONE** - medium dark gray, moderately dolomitic;
1493 - 1494	**SANDSTONE** - very fine grained, subangular to angular, well sorted, trace dull yellow fluorescence and slow bluish cut, scattered carbonaceous material, tight, very dolomitic;
1493 - 1494	**SANDSTONE** - medium brown gray, light medium gray, very fine grained to fine grained, subangular to angular, well sorted, trace dull yellow fluorescence, slow bluish cut, moderately to very dolomitic cemented, no visible porosity, very silty;
1494 - 1498	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with slow bluish cut, moderately to very dolomitic, no visible porosity, very silty;
1498 - 1500	**SILTSTONE** - as above, moderately dolomitic;
1500 - 1506	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, increasingly silty and grading to very finely arenaceous silt, slightly argillaceous, no shows, no visible porosity, very silty, moderately dolomitic;
1506 - 1514	**SILTSTONE** - as above, very finely arenaceous in part, moderately dolomitic
1514 - 1515	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, increasingly silty and grading to very finely arenaceous siltstone, slightly argillaceous, no shows, no visible porosity, very silty, moderately dolomitic;
Belloy	1515m Sample 1517m Log
1515 - 1537	SHALE - brown, blocky, moderately dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1537 - 1538	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above;
1538 - 1544	**SHALE** - brown, medium dark gray, as above, moderately dolomitic;
1544 - 1545	**SILTSTONE** - medium dark gray, as above, moderately dolomitic;
1545 - 1548	**SHALE** - brown, medium dark gray, as above, moderately dolomitic;
1548 - 1549	**SILTSTONE** - medium gray, as above, moderately dolomitic;
1549 - 1559	**SHALE** - brown, medium dark gray, blocky, rarely silty, moderately dolomitic;
1559 - 1562	**SILTSTONE** - medium gray, as above, moderately dolomitic;
1562 - 1564	**SHALE** - brown, medium dark gray, blocky, rarely silty, moderately dolomitic;
1564 - 1565	**SILTSTONE** - medium gray, as above, moderately dolomitic;
1565 - 1567	**SANDSTONE** - medium gray, very fine grained, subangular to angular, well sorted, no shows, interbedded with siltstone as above, moderately dolomitic;
1567 - 1573	**SHALE** - brown, medium dark gray, blocky, rarely silty, moderately dolomitic;
1573 - 1575	**SANDSTONE** - medium gray, very fine grained, subangular to angular, well sorted, grading to siltstone, tight, very silty, moderately dolomitic;
1575 - 1581	**SHALE** - brown, occasionally medium dark gray, as above, moderately dolomitic;
1581 - 1584	**SHALE** - medium dark gray, as above, moderately dolomitic;
Fantasque	1584m Sample 1571m Log

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1584 - 1587	**SANDSTONE** - medium dark gray, fine grained, subangular to angular, well sorted, very rarely medium grained, no shows, no observable porosity, moderately argillaceous, moderately dolomitic, abundant glauconite;
1587 - 1589	**SILTSTONE** - medium dark gray, well consolidated, slightly siliceous cemented, moderately argillaceous;
1589 - 1590	**SANDSTONE** - very fine grained, subangular to angular, well sorted, as above, very well consolidated, siliceous cemented, no observable porosity, moderately argillaceous, moderately carbonaceous, trace pyrite;
1590 - 1593	**SILTSTONE** - medium dark gray, well consolidated, slightly siliceous cemented, moderately argillaceous;
1593 - 1598	**SANDSTONE** - very fine grained, subangular to angular, well sorted, very well consolidated, siliceous cemented in part, slightly to moderately dolomitic, rare cherty laminae, grading to dark gray siltstone, moderately argillaceous, very silty;
1598 - 1601	**SILTSTONE** - medium dark gray, well consolidated, slightly siliceous cemented, moderately argillaceous;
1601 - 1602	**SANDSTONE** - very fine grained, subangular to angular, well sorted, very well consolidated, siliceous cemented in part, slightly to moderately dolomitic, rare cherty laminae, grading to dark gray siltstone, moderately argillaceous, very silty;
1602 - 1603	**SILTSTONE** - medium dark gray, well consolidated, slightly siliceous cemented, moderately argillaceous;
1602 - 1603	**CHERT** - dark brown gray, rarely light medium gray, cryptocrystalline, massive with very fine grains of glauconite;
1603 - 1604	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, as above, moderately carbonaceous, moderately argillaceous, moderately dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1604 - 1606	**SILTSTONE** - medium dark gray, medium brown gray, slightly argillaceous, very finely arenaceous, dark brown gray and grading to silty dolomite in part, very cherty, moderately dolomitic;
1606 - 1608	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, as above, moderately carbonaceous, moderately argillaceous, moderately dolomitic;
1608 - 1610	**CHERT** - dark brown gray, rarely light medium gray, cryptocrystalline, massive with very fine grains of glauconite;
1610 - 1611	**SILTSTONE** - medium dark gray, medium brown gray, slightly argillaceous, very finely arenaceous, dark brown gray and grading to silty dolomite in part, very cherty, moderately dolomitic, moderately sandy;
1611 - 1612	**CHERT** - dark brown gray, rarely light medium gray, cryptocrystalline, massive with very fine grains of glauconite;
1612 - 1614	**SILTSTONE** - medium dark gray, medium brown gray, slightly argillaceous, very finely arenaceous, dark brown gray and grading to silty dolomite in part, very cherty, moderately dolomitic;
1614 - 1617	**CHERT** - dark brown gray, rarely light medium gray, cryptocrystalline, massive with very fine grains of glauconite;
1614 - 1617	**CHERT** - dark brown gray, cryptocrystalline, massive with very fine glauconite grains, as above;
1617 - 1618	**SILTSTONE** - medium dark gray, as above, very cherty, moderately dolomitic;
1618 - 1619	**CHERT** - dark brown gray, cryptocrystalline, as above;
1619 - 1627	**CHERT** - gray black, dark brown gray on fresh surface, microcrystalline to very fine grained, no visible porosity, moderately dolomitic;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1627 - 1634	**CHERT** - gray black, dark brown gray on fresh surface, microcrystalline to very fine grained, trace pyrite, occasional very fine grained very glauconitic sandstone laminae, moderately dolomitic;
1634 - 1641	**CHERT** - microcrystalline to very fine grained, slightly argillaceous, as above, very rare dull yellow fluorescence with slow bluish cut, occasional very fine grained sandstone laminae, moderately dolomitic;
1641 - 1647	**CHERT** - microcrystalline to very fine crystalline, slightly argillaceous, occasional very fine grained sandstone laminae, moderately dolomitic;
1647 - 1654	**CHERT** - gray black, dark brown gray on fresh surface, microcrystalline to very fine grained, as above, moderately dolomitic;
1654 - 1656	**CHERT** - dark gray to dark brown gray, microcrystalline to very fine grained, as above, slightly dolomitic;
1656 - 1658	**CHERT** - dark gray to dark brown gray, microcrystalline to very fine grained, no visible fluorescence, slow bluish cut, slightly argillaceous, trace pyrobitumin, trace pyrite, rare sparry calcite and white dolomite fracture filling, rare microvuggy porosity;
1658 - 1662	**CHERT** - dark gray to dark brown gray, microcrystalline to very fine grained, as above, slightly dolomitic;
1662 - 1666	**CHERT** - dark brown gray,, cryptocrystalline to very fine grained, slightly dolomitic, spiculer in part,, slightly dolomitic, rare white flinty fracture filling, trace microvuggy and coarse grained fracture and solution porosity, dull yellow fluorescence with slow bluish cut;
1666 - 1668	**SANDSTONE** - dark brown gray, very fine grained, subangular to angular, well sorted, slightly dolomitic, very cherty in part, occasional pyrite, trace microvuggy porosity, moderately silty, occasional glauconite;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1668 - 1674	**CHERT** - dark brown gray, light blue gray, cryptocrystalline to very fine grained, slightly dolomitic, rare flinty filled fractures, very rare intercrystalline and microvuggy porosity, occasional very fine grained cherty sandstone with intergranular porosity;
1674 - 1676	**CHERT** - dark brown gray, cryptocrystalline to very fine grained, as above, with dark brown gray very fine grained moderately silty moderately to very dolomitic sandstone, trace fracture and solution porosity, trace intergranular porosity;
1676 - 1678	**CHERT** - blue gray to dark brown gray, cryptocrystalline to very fine grained, as above, slightly dolomitic, with occasional fine to coarse grained sandstone fracture filling with intergranular porosity;
1678 - 1679	**CHERT** - light blue gray, cryptocrystalline to very fine grained, as above, no visible porosity;
1679 - 1689	**CHERT** - medium brown gray to medium dark gray, medium blue gray, cryptocrystalline to very fine grained, trace vuggy porosity, trace intergranular porosity, very rare dull yellow fluorescence with slow bluish cut, as above, with dark brown gray carbonaceous moderately to very dolomitic moderately silty sandstone with trace intergranular porosity, trace solution porosity;
1689 - 1692	**CHERT** - cryptocrystalline to very fine grained, non to moderately dolomitic where very fine grained, trace of fracture infilling, trace microvuggy porosity;
1692 - 1694	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, very slightly to moderately dolomitic, spiculer in part, grading to cherty siltstone, trace solution porosity, very silty;
1694 - 1696	**CHERT** - dark brown gray, occasionally blue gray, cryptocrystalline to very fine grained, as above, trace microvuggy porosity;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1696 - 1699	**SANDSTONE** - dark brown gray, very fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with slow bluish cut, as above, occasionally carbonaceous and pyrobituminous, trace intergranular porosity, very cherty, moderately dolomitic, very silty;
1699 - 1702	**CHERT** - dark brown gray, occasionally blue gray, cryptocrystalline to very fine grained, as above, trace microvuggy porosity;
1702 - 1707	**SANDSTONE** - dark brown gray, very fine grained. subangular to angular, well sorted, trace intergranular porosity, rare dull yellow fluorescence with slow bluish cut, as above, occasionally carbonaceous and pyrobituminous, trace intergranular porosity, very cherty, moderately dolomitic, very silty;
1707 - 1709	**CHERT** - dark brown gray, trace fracture filling with very fine grained sandstone, as above;
1709 - 1718	**SILTSTONE** - very dark gray, no shows, tight, very argillaceous, moderately carbonaceous, very dolomitic;
1718 - 1721	**CHERT** - dark brown gray, trace fracture filling with very fine grained sandstone, as above;
Mattson	1721m Sample 1721m Log
1721 - 1726	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, slow bluish cut, scattered pyrobitumin, rare intergranular porosity, moderately dolomitic, moderately silty;
1726 - 1730	**SANDSTONE** - medium brown gray, light medium gray, very fine grained, subangular to angular, well sorted, slow bluish cut, as above, moderately to very calcareous, no visible porosity, moderately silty;
1730 - 1736	**SANDSTONE** - medium brown gray, light medium gray, very fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence with yellowish white cut, as above, moderately pyrobituminous, no observable porosity to rare intergranular porosity, very calcareous, very silty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1736 - 1737	**SHALE** - grayish green, blocky, non calcareous;
1737 - 1739	**SANDSTONE** - medium light gray, very fine grained, angular to subrounded, well sorted, scattered dull yellow fluorescence with yellowish white cut, slightly to very calcareous, scattered pyrobitumin, siliceous cemented, scattered intergranular porosity;
1739 - 1741	**SANDSTONE** - medium light gray, very fine grained, angular to subrounded, well sorted, scattered pyrobitumin, siliceous cemented, as above, very calcareous, very silty;
1741 - 1742	**SHALE** - grayish green, blocky, non calcareous;
1742 - 1743	**SANDSTONE** - medium light gray, very fine grained, angular to subrounded, well sorted, scattered pyrobitumin, siliceous cemented, as above, very calcareous, very silty;
1743 - 1752	**SANDSTONE** - medium light gray, very fine grained to fine grained, angular to subrounded, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, very calcareous to dolomitic, very rare glauconite, rarely medium grained, scattered good intergranular and intercrystalline porosity with euhedral quartz crystals and overgrowths;
1752 - 1753	**SILTSTONE** - medium gray, siliceous cemented, occasionally grayish green and shaley, moderately dolomitic;
1753 - 1755	**SANDSTONE** - medium light gray, very fine grained to fine grained, angular to subrounded, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, very calcareous to dolomitic, very rare glauconite, rarely medium grained, scattered intergranular porosity;
1755 - 1756	**SILTSTONE** - medium gray, siliceous cemented, occasionally grayish green and shaley, moderately dolomitic;
1756 - 1758	**SANDSTONE** - medium light gray, very fine grained to fine grained, angular to subrounded, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, very calcareous to dolomitic, very rare glauconite, rarely medium grained, scattered intergranular porosity;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1758 - 1759	**SILTSTONE** - medium gray, siliceous cemented, occasionally grayish green and shaley, moderately dolomitic;
1759 - 1761	**SANDSTONE** - medium light gray, pale greenish gray in part, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, slightly to moderately dolomitic, siliceous cemented, very rare pinpoint porosity, trace pyrite, rarely pyrobituminous with dull yellow fluorescence and yellowish white cut, as above;
1761 - 1762	**SHALE** - dark gray, blocky, very silty in part, moderately dolomitic;
1762 - 1763	**SILTSTONE** - medium gray, dark gray, as above, moderately dolomitic;
1763 - 1764	**SANDSTONE** - pale greenish gray, medium light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, rare glauconite, siliceous cemented, scattered silt size pyrite, rare intergranular porosity, very silty, moderately dolomitic;
1764 - 1765	**SHALE** - dark gray, blocky, very silty in part, moderately dolomitic;
1765 - 1768	**SANDSTONE** - pale greenish gray, medium light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, rare glauconite, siliceous cemented, scattered silt size pyrite, rare intergranular porosity, very silty, moderately dolomitic;
1768 - 1769	**SILTSTONE** - medium gray, dark gray, as above, moderately dolomitic;
1769 - 1770	**SHALE** - dark gray, blocky, very silty in part, moderately dolomitic;
1770 - 1771	**SILTSTONE** - medium gray, dark gray, as above, moderately dolomitic;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1771 - 1773	**SANDSTONE** - pale greenish gray, medium light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, rare glauconite, siliceous cemented, scattered silt size pyrite, rare intergranular porosity, very silty, moderately dolomitic;
1773 - 1774	**SILTSTONE** - medium gray, dark gray, as above, moderately dolomitic;
1774 - 1777	**SHALE** - very dark gray, slightly dolomitic, slightly to moderately silty, moderately carbonaceous;
1777 - 1778	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, siliceous cemented, moderately silty, slightly dolomitic, moderately carbonaceous, very rare very fine to fine grained streaks with intergranular porosity;
1778 - 1780	**SHALE** - very dark gray, slightly dolomitic, slightly to moderately silty, moderately carbonaceous;
1780 - 1783	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, very calcareous to dolomitic cement, siliceous cement, as above, no shows, no observable porosity;
1783 - 1786	**SILTSTONE** - dark gray, moderately carbonaceous, moderately dolomitic, moderately argillaceous;
1786 - 1787	**SANDSTONE** - medium light gray, very fine grained, subangular to angular, well sorted, very calcareous to dolomitic cement, siliceous cement, as above, no shows, no observable porosity;
1787 - 1789	**SILTSTONE** - dark gray, moderately carbonaceous, moderately dolomitic, moderately argillaceous;
1789 - 1794	**SANDSTONE** - light medium gray, salt and pepper in part, very fine grained, subangular to angular, well sorted, porosity, dull yellow fluorescence with slow bluish cut, siliceous cemented, slightly to moderately dolomitic, trace intergranular porosity in sample;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1794 - 1796	**SHALE** - medium gray to medium green gray, very silty in part, moderately dolomitic;
1796 - 1797	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, slightly to moderately dolomitic, siliceous cemented, very silty;
1797 - 1798	**SHALE** - medium gray to medium green gray, very silty in part, moderately dolomitic;
1798 - 1799	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, as above, slightly to moderately dolomitic, siliceous cemented, very silty;
1799 - 1801	**SILTSTONE** - light medium gray, very siliceous cemented and cherty, very finely arenaceous and grading to silty sand, very cherty, moderately dolomitic;
1801 - 1802	**SANDSTONE** - medium light gray, light brown gray in part, pale greenish gray in part, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with very slow bluish cut, very silty and grading to siltstone, no observable porosity, very cherty;
1802 - 1803	**SHALE** - as above, very dark gray and carbonaceous in part;
1803 - 1806	**SANDSTONE** - medium light gray, light brown gray in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, trace pyrite, siliceous cemented, cherty in part, trace shaley laminae, trace dolomitic kaolin laminae, trace intergranular porosity, moderately dolomitic;
1806 - 1807	**SHALE** - dark gray, non calcareous, moderately carbonaceous;
1807 - 1812	**SANDSTONE** - medium light gray, light brown gray in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, trace pyrite, siliceous cemented, cherty in part, trace shaley laminae, trace dolomitic kaolin laminae, trace intergranular porosity, moderately dolomitic;
1812 - 1813	**SHALE** - dark gray, non calcareous, moderately carbonaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1813 - 1815	**SANDSTONE** - light gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very rare coarse to very coarse chert grains in sample, trace intergranular porosity where very fine to fine grained, moderately dolomitic;
1815 - 1816	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, as above, trace intergranular porosity, moderately dolomitic;
1816 - 1818	**SANDSTONE** - light medium gray, light brown gray, very fine grained, subangular to angular, well sorted, as above, moderately dolomitic;
1818 - 1820	**SANDSTONE** - light medium gray, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, moderately to very dolomitic, trace chert fragments in sample, trace intergranular porosity, moderately dolomitic;
1820 - 1822	**SHALE** - very dark gray, very silty and grading to very argillaceous siltstone in part, moderately carbonaceous;
1822 - 1825	**SANDSTONE** - light medium gray, light brown gray, very fine grained, subangular to angular, well sorted, as above, moderately dolomitic;
1825 - 1827	**SILTSTONE** - dark gray, moderately argillaceous, moderately dolomitic;
1827 - 1828	**SANDSTONE** - medium light gray salt and pepper, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, rarely fine grained, trace intergranular porosity, moderately dolomitic;
1828 - 1830	**SILTSTONE** - dark gray, very shaley in part, very finely arenaceous in part, moderately dolomitic, moderately argillaceous;
1830 - 1831	**SHALE** - dark gray, as above;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1831 - 1833	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, trace dolomitic kaolin laminae, trace intergranular porosity, moderately dolomitic;
1833 - 1834	**SILTSTONE** - dark gray, very shaley in part, very finely arenaceous in part, moderately dolomitic, moderately argillaceous;
1834 - 1835	**SHALE** - dark gray, as above;
1835 - 1840	**SANDSTONE** - medium light gray, light brown gray, very fine grained, occasionally very fine to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, trace intergranular porosity, moderately dolomitic;
1840 - 1841	**SHALE** - dark gray, as above;
1841 - 1842	**SILTSTONE** - medium to dark gray, brown gray and grading to shale, non calcareous, moderately carbonaceous;
1842 - 1846	**SANDSTONE** - medium light gray salt and pepper, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, slightly to moderately dolomitic, scattered intergranular porosity where fine grained, moderately dolomitic;
1846 - 1848	**SHALE** - dark gray, medium brown gray, non calcareous, moderately silty;
1848 - 1850	**SANDSTONE** - medium light gray salt and pepper, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, slightly to moderately dolomitic, scattered intergranular porosity where fine grained, moderately dolomitic;
1850 - 1853	**SHALE** - dark gray, silty in part, non calcareous, moderately carbonaceous, moderately silty;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1853 - 1856	**SILTSTONE** - dark gray, very argillaceous, moderately dolomitic;
1856 - 1860	**SANDSTONE** - medium light gray, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish white cut, siliceous cemented, scattered intergranular porosity where very fine to fine grained, medium brown gray with pyrobitumin in part, moderately dolomitic;
1860 - 1861	**SILTSTONE** - dark gray, slightly to moderately pyrobituminous in part, very argillaceous, moderately dolomitic;
1861 - 1867	**SILTSTONE** - light medium gray, medium brown gray, no apparent fluorescence, bluish cut, non to very slightly dolomitic, bentonitic, very finely arenaceous in part, trace microvuggy and moldic porosity, very argillaceous;
1867 - 1869	**SANDSTONE** - light medium gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, no observable to very rare trace intergranular porosity in sample, moderately dolomitic;
1869 - 1870	**SILTSTONE** - as above, trace microvuggy and moldic porosity;
1870 - 1874	**SANDSTONE** - light brown gray to light yellow brown, occasional medium brown gray, very fine grained and some fine grained, subangular to angular, well sorted, occasional dull yellow fluorescence with slow bluish cut, siliceous cemented, trace intergranular porosity in part, slightly dolomitic;
1874 - 1875	**SILTSTONE** - as above, scattered microvuggy and moldic porosity;
1875 - 1880	**SANDSTONE** - light gray salt and pepper, light yellow brown to light brown gray, very fine grained to fine grained, subangular to angular, well sorted, occasional dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic, trace to scattered intergranular porosity;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1880 - 1882	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic cemented, trace white slightly dolomitic kaolin laminae, scattered intergranular porosity;
1882 - 1883	**SILTSTONE** - as above, trace microvuggy and moldic porosity;
1883 - 1888	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic cemented, trace white slightly dolomitic kaolin laminae, scattered intergranular porosity;
1888 - 1889	**SILTSTONE** - as above, trace microvuggy and moldic porosity;
1889 - 1892	**SANDSTONE** - medium light gray salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, scattered dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic cemented, trace white slightly dolomitic kaolin laminae, scattered intergranular porosity;
1892 - 1893	**SILTSTONE** - light medium gray, as above, dull yellow fluorescence with bluish cut, non calcareous, very argillaceous;
1893 - 1894	**SHALE** - dark gray, as above;
1894 - 1895	**SANDSTONE** - medium light gray salt and pepper, light yellow brown, light brown gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, non to slightly dolomitic, trace kaolin laminae, occasional subrounded fine grains, trace intergranular porosity;
1895 - 1897	**SILTSTONE** - light medium gray, dull yellow fluorescence with bluish cut, non calcareous, very argillaceous;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1897 - 1901	**SANDSTONE** - light yellow brown, rarely medium yellow brown and pyrobituminous, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic, occasional carbonaceous laminae, trace intergranular porosity;
1901 - 1903	**SILTSTONE** - as above, with moldic and microvuggy porosity, very argillaceous;
1903 - 1904	**SANDSTONE** - light yellow brown, rarely medium yellow brown and pyrobituminous, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, slightly dolomitic, occasional carbonaceous laminae, trace intergranular porosity;
1904 - 1906	**SILTSTONE** - light medium gray, as above, non calcareous, very argillaceous;
1906 - 1909	**CHERT** - light yellow brown, cryptocrystalline, occasionally dolomitic, no observable porosity;
1909 - 1913	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subangular to angular, well sorted, siliceous cemented, subrounded grains in part, scattered good intergranular porosity, moderately dolomitic;
1913 - 1916	**CHERT** - light yellow brown, occasionally bluish gray, cryptocrystalline, occasionally dolomitic, no observable porosity;
1916 - 1917	**DOLOMITE** - light to medium yellow brown, microcrystalline to finely crystalline, no shows, very finely arenaceous, no visible porosity, moderately cherty;
1917 - 1918	**SANDSTONE** - light gray salt and pepper, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, very siliceous cemented and cherty, no visible porosity;
1918 - 1919	**CHERT** - light yellow brown, cryptocrystalline, occasionally dolomitic, no observable porosity;

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Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1919 - 1922	**DOLOMITE** - light to medium yellow brown, very finely crystalline to finely crystalline, very fine grained wackestone in part, as above;
1922 - 1925	**SANDSTONE** - light gray salt and pepper, light yellow brown salt and pepper, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, very siliceous cemented and cherty, very dolomitic in part and grading to very fine wackestone;
1925 - 1926	**CHERT** - cryptocrystalline to very fine grained, as above, trace dark gray and cryptocrystalline to microcrystalline, tight;
1926 - 1929	**SANDSTONE** - light yellow brown, salt and pepper in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly to moderately dolomitic, moderately cherty in part, no visible porosity, moderately silty;
1929 - 1930	**CHERT** - cryptocrystalline to very fine grained, as above, trace dark gray and cryptocrystalline to microcrystalline, tight;
1930 - 1932	**SANDSTONE** - light yellow brown, salt and pepper in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly to moderately dolomitic, moderately cherty in part, no visible porosity, moderately silty;
1932 - 1933	**CHERT** - cryptocrystalline to very fine grained, as above, trace dark gray and cryptocrystalline to microcrystalline, tight;
1933 - 1935	**SANDSTONE** - light yellow brown, medium light gray salt and pepper, medium dark brown, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence in part with slow bluish cut, siliceous cemented, medium yellow brown pyrobituminous and very dolomitic in part, grading to very fine grained wackestone in part, no observable porosity;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1935 - 1936	**CHERT** - light to medium yellow brown, cryptocrystalline to very fine grained, grading in part to very fine grained, silty. cherty, sandstone;
1936 - 1938	**SANDSTONE** - light gray, light yellow brown, very fine grained and some fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with bluish cut, very dolomitic and grading to very fine grained wackestone in part, cherty streaks, siliceous cemented, trace kaolin laminae, moderately cherty;
1938 - 1939	**CHERT** - light to medium yellow brown, cryptocrystalline to very fine grained, grading in part to very fine grained, silty, cherty, sandstone;
1939 - 1941	**SANDSTONE** - light gray, light yellow brown, very fine grained and some fine grained, subangular to angular, well sorted, rare dull yellow fluorescence with bluish cut, very dolomitic and grading to very fine grained wackestone in part, cherty streaks, siliceous cemented, trace kaolin laminae, moderately cherty;
1941 - 1945	**SANDSTONE** - as above, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, medium yellow brown and argillaceous and slightly dolomitic in part, very rare streaks of medium to coarse grained, tight, moderately dolomitic, moderately cherty;
1945 - 1955	**SANDSTONE** - medium brown gray, very fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, very siliceous cemented, slightly dolomitic, occasional moderately argillaceous siltstone interbeds, very rare streaks of fine to medium grained, very cherty;
1955 - 1964	**SANDSTONE** - light yellow brown, dark yellow brown in part, very fine grained to fine grained, subangular to subrounded, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1964 - 1966	**SANDSTONE** - medium yellow brown, very fine grained, subangular to angular, well sorted, moderately dolomitic, no visible porosity, moderately silty, moderately cherty;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1966 - 1974	**SANDSTONE** - light to medium yellow brown, very fine grained to fine grained, subangular to subrounded, well sorted, siliceous cemented, very slightly dolomitic, very fine grained and moderately dolomitic in part, silty in part, cherty in part, scattered intergranular porosity;
1974 - 1976	**SANDSTONE** - light yellow brown, very fine grained, subangular to angular, well sorted, very siliceous and cherty in part with laminae of light to dark gray chert, occasional pyrite, tight, moderately dolomitic;
1976 - 1979	**SANDSTONE** - dark yellow brown, very fine grained to fine grained, subangular to angular, well sorted, siliceous cemented, slightly argillaceous, scattered pyrobitumin, rare trace intergranular porosity;
1979 - 1980	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1980 - 1981	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1981 - 1982	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1982 - 1984	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1984 - 1985	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1985 - 1987	**SANDSTONE** - medium dark gray, very fine grained, subangular to angular, well sorted, occasional dark gray carbonaceous shale laminae, moderately silty, very cherty, moderately argillaceous;
1987 - 1988	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
1988 - 1989	**SANDSTONE** - light medium gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with slow bluish cut, siliceous cemented, very slightly dolomitic, trace kaolin laminae, scattered intergranular porosity;
1989 - 1991	**SILTSTONE** - dark gray, slightly dolomitic, moderately sandy, moderately argillaceous;
1991 - 1992	**SILTSTONE** - dark gray to medium brown yellow, medium light gray in part, as above, moderately argillaceous, moderately sandy;
1992 - 1993	**CHERT** - light blue gray, dark brown, cryptocrystalline to very fine grained, moderately sandy;
1993 - 1994	**SILTSTONE** - dark gray to medium brown yellow, medium light gray in part, as above, moderately argillaceous, moderately sandy;
1994 - 1996	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, as above, dark gray with abundant glauconite in part, scattered intergranular porosity;
1996 - 1999	**SILTSTONE** - dark gray, moderately carbonaceous, very finely arenaceous and grading to very fine grained silty sandstone, moderately dolomitic, moderately argillaceous;
1999 - 2000	**SANDSTONE** - light yellow brown, light medium gray salt and pepper, very fine grained to medium grained, angular to subrounded, well sorted, siliceous cemented, moderately dolomitic and very fine grained in part, trace intergranular porosity where fine to medium grained;
2000 - 2008	**SANDSTONE** - light yellow brown, light medium gray salt and pepper, very fine grained to medium grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, siliceous cemented, very slightly dolomitic, subrounded medium grains, trace kaolin laminae, trace to scattered intergranular porosity;
2008 - 2010	**SANDSTONE** - very fine grained to medium grained, subangular to subrounded, well sorted, as above, becoming cherty with cherty laminae;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
2010 - 2012	**SILTSTONE** - dark gray, moderately carbonaceous, very finely arenaceous and grading to very fine grained silty sandstone, moderately dolomitic, moderately argillaceous;
2012 - 2013	**SHALE** - dark gray, non calcareous;
2013 - 2015	**SILTSTONE** - dark gray, cherty in part, moderately carbonaceous, moderately sandy, moderately dolomitic, moderately argillaceous;
2015 - 2016	**CHERT** - medium blue gray to dark gray, cryptocrystalline and some very fine grained, trace microvuggy porosity;
2016 - 2017	**SILTSTONE** - dark gray, cherty in part, moderately carbonaceous, moderately sandy, moderately dolomitic, moderately argillaceous;
2017 - 2019	**SANDSTONE** - light yellow brown, light gray, salt and pepper in part, very fine grained to medium grained, subrounded to angular, well sorted, dull yellow fluorescence with bluish cut in part, siliceous cemented, scattered intergranular porosity;
2019 - 2025	**SANDSTONE** - light yellow brown, light gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence in part with bluish cut, medium yellow brown in part and pyrobituminous, becoming moderately to very dolomitic in part, trace intergranular porosity;
2025 - 2030	**SILTSTONE** - dark gray, dark brown gray in part, moderately to very cherty, chert streaks, slightly to moderately dolomitic, occasional very dolomitic, very finely arenaceous in part, moderately cherty;
2030 - 2032	**SANDSTONE** - light to medium yellow brown, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish to milky white cut in part, siliceous cemented, slightly to moderately dolomitic, cherty where medium yellow brown, trace intergranular porosity;

LITHOLOGY

Formation tops Sample interval (in meters)	SAMPLE DESCRIPTION
2032 - 2034	**SILTSTONE** - dark gray, dark brown gray in part, moderately to very cherty, chert streaks, slightly to moderately dolomitic, occasionally very dolomitic, very finely arenaceous in part;
2034 - 2037	**SANDSTONE** - light to medium yellow brown, light gray, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly pyritic, cherty in part and occasional chert laminae, silty, moderately dolomitic;
2037 - 2038	**SILTSTONE** - dark gray, dark brown gray in part, moderately to very cherty, chert streaks, slightly to moderately dolomitic, occasionally very dolomitic, very finely arenaceous in part, moderately cherty;
2038 - 2039	**SANDSTONE** - very fine grained to fine grained, subangular to angular, well sorted, very dolomitic in part and grading to very fine grained wackestone in part, moderately cherty;
2039 - 2044	**SANDSTONE** - light gray, light yellow brown, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly to moderately dolomitic, medium yellow brown and very dolomitic in part, trace pyrite, very cherty in part and scattered cherty laminae,
2044 - 2045	**SANDSTONE** - medium light gray salt and pepper, fine grained to medium grained, subrounded to angular, well sorted, siliceous cemented, slightly dolomitic, trace intergranular porosity in sample;
2045 - 2046	**SANDSTONE** - light gray, light yellow brown, medium yellow brown in part, very fine grained to fine grained, subangular to angular, well sorted, dull yellow fluorescence with bluish cut, slightly to moderately dolomitic, medium yellow brown and very dolomitic in part, trace pyrite, very cherty in part and scattered cherty laminae;
TOTAL DEPTH	2046m Driller 2045m Logger

GEOLOGICAL SUMMARY AND CONCLUSIONS

Paramount et al Liard A-01 located at 60° 00' 05" 123° 15' 05" was spudded on February 9, 1999 at 05:30 hours.

Liard A-01 was drilled to test the Lower Cretaceous Chinkeh sandstone for gas, and the Permian Fantasque and Mattson sands for the presence of oil or gas.

The well location was on the southeast end of a plunging structure characterized by the presence of a thrust fault.

A wellsite geologist was on location from spud to T.D. Sample collection began at surface. 2 sets of vialed samples were collected and washed for the National Energy Board and 1 set of vialed samples was collected and washed for Paramount Resources Ltd. Additional bagged samples were collected for the National Energy Board.

A Continental Laboratories Minipac 2100 gas detection system was set up and operated from spud to T.D.

A 311mm pilot hole was drilled to 501 metres. This hole was enlarged to 445mm to 503 metres and 38 joints of 339.7mm surface casing ran and landed at 503 metres.

The mud system was converted to a calcium chloride invert system and drilling 222mm hole commenced at 15:40 hrs., February 17, 1999.

The Scatter appeared to come in at 982 metres (-459). Prognosed top of the Scatter was 971 metres (-448). No significant shows were encountered in the Scatter.

The top of the Garbutt was tentatively picked at 1101 metres (-578). Prognosed top of the Garbutt was 1107 metres (-584).

The decision was made to attempt to core the Chinkeh/Triassic formation. The Chinkeh top was picked at 1330 metres (-807) based on a penetration rate change and sample description of a light medium gray salt and pepper, very fine grained, silty sandstone with streaks of abundant glauconite occasional dull yellow fluorescence with streaming milky white cut, and very rare pinpoint porosity. No increase in gas readings occurred. Core #1 was cut from 1333.0 metres to 1351.2 metres with 100% recovery. The core contained 3 thin sandstone units with a total thickness of 1.65 metres. Only rare pinpoint porosity was observed in the core.

The core recovery indicated the section may have thickened in this location and probably did not represent the Chinkeh/Triassic despite the similarity of the lithology. Drilling continued. The Chinkeh was re-picked from drilling rate and samples at 1410 metres. Prognosed top of the Chinkeh

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

was 1293 metres (-770). Penetration rate went from 8.1 minutes/metre to 10-13.1 minutes/metre and gas decreased from 8 units to 4-5 units. This suggested the Chinkeh was wet. Lithology was a medium gray salt and pepper very fine to fine grained, medium greenish gray in part, siliceous cemented, slightly dolomitic cemented, very silty, with abundant glauconite, and trace intergranular porosity. Isopaching up from the Chinkeh put the Garbutt at 1236 metres (-713).

The top of the Triassic was tentatively picked at 1425 metres (-902) Prognosed top of the Triassic was 1304 metres (-781). The Triassic was later re-picked at 1455 metres (-932) based on penetration rate change and lithology change from very fine grained sandstone to siltstone and brown shale.

The top of the Belloy was picked at 1515 metres (-992). Prognosed top of the Belloy was 1441 metres (-918). Lithology went from a medium dark gray, moderately dolomitic, very finely arenaceous siltstone to a brown, moderately dolomitic shale.

The top of the Fantasque was tentatively picked at 1584 metres based on the change in lithology from a medium dark gray, moderately dolomitic shale to a medium dark gray, very fine to fine grained, moderately argillaceous, moderately dolomitic sandstone with abundant glauconite. No porosity was observed in samples to 1654 metres.

Background gas readings were low in this hole. Background gas was 4 to 30 units. There were no large increases in gas readings from surface to 2030 metres. The gas detection system was function tested regularly with butane test gas. These tests indicated the system would respond to increases in gas in the mud system. A new gas detector with slightly greater sensitivity was installed on February 27th at 1654 metres prior to entering the Mattson formation.

At 1648 metres deviation increased to 3.50 degrees. It was decided to pull out of the hole at 1654 metres to run directional tools in order to control the deviation problem. When pulled the bit was undergauge and missing 2 cones. After a mill run, and several magnet runs the cones and bearing holders were recovered.

Drilling continued with directional tools. The Fantasque cherts displayed evidence of microvuggy, solution, and fracture porosity from 1656 metres to 1707 metres. There were occasional spotty oil shows in the interval 1679 metres to 1689 metres. Drilling rate varied considerably when directional tools were used and was often not reflective of lithology or porosity as weight on bit (WOB) and revolutions per minute (RPM) changed depending on whether pipe was rotating or sliding.

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

The Mattson was picked at 1721 metres (-1198) based on samples. Prognosed top of the Mattson was 1595 metres (-1072). The top of the Mattson was marked by a change from dark brown cherts and dark gray, very dolomitic siltstones of the Fantasque formation to medium brown gray, very fine to fine grained, calcareous, sandstone. There was scattered dull yellow fluorescence with yellowish white cut in samples from 1730 metres to 1739 metres. There was scattered intergranular porosity in this interval. Gas increased from 7 units to 31 units over the interval 1737 metres to 1739 metres.

A good drilling break occurred from 1743 metres to 1747 metres. Penetration rate went from 24.3 minutes/metre to 5.2 -13.6 minutes/metre; however, gas readings decreased from 10 units to 7 units. Lithology was a medium light gray, very fine to fine grained, very calcareous to dolomitic, siliceous cemented sandstone, with scattered dull yellow fluorescence with weak bluish cut, and good intergranular and intercrystalline porosity. The sand showed much evidence of recrystallization with quartz overgrowths and euhedral crystal development.

The interval from 1831 metres to 1833 metres produced a penetration rate change from 36.1 minutes/metre to 23-24.5 minutes/metre and a gas reading increase from 4 to 7-10 units. Over the interval 1835 metres to 1840 metres penetration rate increased from 36.5 minutes/metre to 10.2-21 minutes/metre and gas readings increased from 10 units to 13 units. Lithology was very fine to fine grained, siliceous cemented, moderately dolomitic sandstone with dull yellow fluorescence, slow bluish cut, and trace intergranular porosity.

From 1842 metres to 1846 metres the drilling rate increased from 17.3 to 4.0-11.5 minutes/metre. Gas readings increased from 8 to 10 units. Of note was the trip gas of 50 units after the trip at 1751 metres and several connection gases of 24-32 units after the penetration of this zone. This was the first evidence of trip or connection gas encountered in this hole. Lithology was a medium light gray salt and pepper to light brown gray, very fine to fine grained sandstone, siliceous cemented, slightly to moderately dolomitic cemented, with dull yellow fluorescence and bluish cut. The sample showed scattered intergranular porosity where sand is fine grained.

The interval 1867 metres to 1869 metres produced a drilling break from 55.4 minutes/metre to 19.3-14.5 minutes/metre. Gas increased slightly from 15 to 20 units. Lithology was a light medium gray, very fine grained sandstone, siliceous cemented, moderately dolomitic, with dull yellow fluorescence, bluish white cut, and traces of intergranular porosity.

The very argillaceous siltstone interbeds from 1853 metres to 1906 metres produced no drilling breaks or gas increases but exhibited scattered microvuggy and moldic porosity.

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

The interval from 1876 metres to 1892 metres showed a penetration rate increase from 33.5 minutes/metre to 7.7-24.7 minutes/metre. Gas readings did not increase and ran 10-18 units. The sandstone was usually very fine grained to fine grained, siliceous cemented, very slightly dolomitic, with a dull yellow fluorescence and bluish cut. The sands in this interval showed fair to good intergranular porosity in samples.

At 1908 metres to 1909 metres lithology changed from sandstone to light yellow brown, occasionally dolomitic, cryptocrystalline, chert with no shows and no visible porosity. A good drilling break occurred from 1909 metres to 1913 metres with penetration rate change to 6.5-1.7 minutes/metre. There was no increase in gas readings over this interval and no indication of gas or water influx in the drilling fluid. Samples showed 10% medium gray salt and pepper, very fine to medium grained, sandstone with good intergranular porosity (10-15%) where fine to medium grained.

It was decided to test the above drilling break interval. DST #1, a bottom hole conventional test, was run over the interval 1906 metres to 1917 metres. Times were 10-3-15-60-60-120. The preflows produced strong air blows with no gas to surface. Real time indicated test tool plugged 5 minutes into the first preflow. The test continued with a initial shut in of 60 minutes, a valve open of 60 minutes, and a final shut in of 120 minutes. The valve open produced a weak air blow throughout. Field pressures were taken from Delta P real time charts as downhole recorder charts could not be field read due to tool plugging. The highest flow pressure recorded was the 2nd IPF pressure of 17982 kPa. The FF pressure was 175541 kPa. FSI pressure was 17574 kPa. The recovery was 660 metres of fluid. The top 108 metres of the recovery was invert and salty water. The bottom 552 metres was salty water. It was decided not to attempt another DST of this zone as Baker Atlas advised they had enough data to do a Horner plot. The test indicated this interval would produce salty water.

Drilling continued to 1935 metres. T.D. was called AT 05:30 hrs. on March 11, 1999.

Logs were run using Baker Atlas. Logger's T.D. was 1930.6 metres. The following logs were run: HDIL-GR (1928.1 metres to 502.0 metres); ZDL-CNL-GR-XYCAL (1929.2 metres to 502.0 metres); XMAC-GR (1925.0 metres to 502.0 metres). The loggers experienced some processing problems with the sonic tool; otherwise the equipment performed well. Logger's depths appeared to be 3 metres above driller's depths when comparisons were made with drilling breaks and lithology.

Based on log response and sample descriptions it was decided to run 5 straddle inflate drillstem tests.

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

DST #2 was run in the Mattson over the interval 1865 metres to 1892 metres. The preflows produced a weak air blow throughout and packer seat was lost 2 minutes into the ISI. The test was discontinued. Recovery was 215 metres of invert drilling fluid. Real time showed an IPF pressure of 241 kPa and a FPF pressure of 418 kPa. The ISI pressure at 2 minutes was 4220 kPa. Baker Atlas advised that there was enough information on the charts to do a Horner plot.

DST #3 was run in the Mattson over the interval 1819 metres to 1848 metres. Times were 10-60-120-240. The Preflow produced a weak air blow increasing to strong air blow in 30 seconds, gas to surface in 6.5 minutes, and a lazy 3 metre flare on a 6.35mm choke. IPF pressure was 534 kPa and FPF pressure was 855 kPa. ISI pressure was 15044 kPa. A VO of 120 minutes produced a lazy 1.5 metre flare through a 3.175mm choke. 60 kPa of pressure at the floor manifold indicated a flow of 214m3/day (7557ft3/day). Recovery was 100 metres of gassy invert and 100 metres of gassy water cut invert. A sample caught just above the tool was water with a salinity of 34000ppm CL. The test indicated a gas reservoir which produces water.

DST #4 was run in the Mattson over the interval 1781 metres to 1804.4 metres. Times were 10-60-180-360. The preflow produced a WAB to FAB in 10 minutes with no gas to surface. The VO produced a strong initial surge followed by a WAB. As the WAB increased to a FAB the VO time was increased to 180 minutes. There was no gas to surface. IPF pressure was 253 kPa and FPF pressure was 338 kPa. IF pressure on VO was 239 kPa with FF pressure of 297 kPa. ISI pressure was 763 kPa and FSI pressure was 2391 after 360 minutes. Recovery was 10 metres of gassy invert. The test indicated a low permeability reservoir.

DST #5 was run in the Chinkeh over the interval 1405 metres to 1429 metres. Times were 10-60-120-240. The preflow and valve opened both produced a very weak air blow with no gas to surface. ISI pressure was 10900 kPa. FSI pressure was 10903 kPa. IF pressure on VO was 283 kPa and FF pressure was 652 kPa. Recovery was 45 metres of invert. The test indicated a low permeability reservoir.

DST #6 was run in the Fantasque over the interval 1668 metres to 1698 metres. A 10 minute preflow produced a WAB increasing to SAB in 2.5 minutes. There was no gas to surface. After an ISI of 60 minutes the tool was opened for 120 minutes. VO produced a WAB increasing to SAB in 2 minutes with GTS in 30 minutes. The gas flow was TSTM. IPF pressure was 610 kPa with a FPF pressure of 1075 kPa. ISI pressure was 15104 kPa. IF pressure was 1239 kPa and FF pressure 5134 kPa. FSI pressure was 15071 kPa. The fluid recovery of 490 metres consisted of 90 metres of gassy invert, 200 metres of gassy invert slightly contaminated with salt water, and 200 metres of gassy salt water (50000ppm Cl). The test indicated a permeable reservoir which would produce gas and salt water

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

The decision was made to drill deeper to 2000 metres to evaluate the next few Mattson sands.

A drilling break from 49 minutes/metre to 4-5.6 minutes/metre occurred over the interval 1955 metres to 1962 metres. Gas readings increased from 8 to 21 units and samples indicated a light yellow brown, very fine to fine grained sandstone, with scattered good intergranular porosity

A penetration rate change from 46 minutes/metre to 25 minutes/metre over the interval 1999 metres to 2000 metres produced a gas increase from 18 to 42 units. Samples showed a trace of fine to medium grained sandstone with intergranular porosity.

Rather than stop drilling at 2000 metres the decision was made to drill ahead to make enough overhole to show the above sandstone on logs.

Several additional drilling breaks with small gas increases occurred from 2000 metres to 2030 metres. From 2030 metres to 2031 metres the penetration rate went from 41.6 minutes/metre to 11.7 minutes/metre. Gas readings increased from 18 units to 172 units. Samples indicated a very fine to fine grained sandstone with dull yellow fluorescence, rare milky white cut, and trace of intergranular porosity. The magnitude of the gas detector response was larger than had previously been encountered in the hole and the decision was made to continue drilling to ensure this zone showed up on logs. Background gas went from 18 to 20 units before penetration of the above zone to 45 to 55 units. Connection gas readings als appeared for the first time in the hole.

At 2044 metres to 2045 metres penetration rate went from 38.0 minutes/metre to 25 minutes/metre and gas increased from 43 to 113 units. Lithology was a very fine to fine grained sandstone with streaks of fine to medium grained with intergranular porosity.

Drilling was stopped and TD called at 2046 metres on March 19, 1999 at 20:20 hrs. because of the number of hours on the bit and drop in penetration rate.

The following logs were run using Baker Atlas equipment. Logger's TD was 2044.8 metres. The following logs were run: HDIL-GR (2042.3 metres to 1925.0 metres); ZDL-CNL-GR-XYCAL (2043.7 metres to 1925.0 metres); MAC-GR-CAL (2041.2 metres to 1925.0 metres).

Based on log response, sample description, and gas detector response several zones appeared to be candidates for testing.

GEOLOGICAL SUMMARY AND CONCLUSIONS (cont.)

DST #7, a bottom hole inflate, was run over the interval 2028 metres to 2046 metres. A preflow of 10 minutes produced a WAB increasing to SAB in 30 seconds then decreasing to FAB to end of PF with no gas to surface. IPF pressure was 452 kPa. FPF pressure was 611 kPa. An ISI of 60 minutes produced an ISI pressure of 2732 kPa. VO was 120 minutes with a WAB increasing to SAB in 30 seconds to a SAB for 4 minutes then decreasing to FAB to end of VO. There was no gas to surface. IF pressure was 376 kPa. FF pressure was 735 kPA. A FSI of 240 minutes produced a FSI pressure of 4693 kPa.

DST #8 over the interval 1955 metres to 1965 metres was declared a misrun due to blown bottom packer. DST #9 over the same interval produced a WAB on preflow with NGTS. The packer failed at 8 minutes into the PF. IPF pressure was 581 kPa and FPF pressure was 2811 kPa.

The decision was made to run 177.8mm casing to the bottom of the hole.

SUMMARY OF DRILLING BREAKS AND GAS INCREASES

Interval	Formation	P.R. Change(min/m)	Gas Change(units)	Lithology
166-69	Lepine	2.5 to 2.2-2.3	4 to 5	CGL/tr ig por
183-19	Lepine	2.5 to 1.7-3.4	3-4 to 4-8	CGL/ig por
243-59	Lepine	8.5 to 3.6-4.5	5 to 3-4	SS/scat ig por
259-67	Lepine	6.0 to 3.8-4.6	3 to 4	CGL/g ig por
349-53	Lepine	7.9 to 3.8-7.5	5 to 4	SS/tr ig por
1102-03	Garbutt	8.4 to 11	22 to 21	SS/os/tt
1204-06	Garbutt	9.8 to 10.5	22 to 36	SS/os/rr pp por
1218-20	Garbutt	10.5 to 7.2-8.5	18 to 16	SS/os/ tt
1223-32	Garbutt	11.1 to 7.1-8.4	26 to 16 to 23	SS/os/rr pp por
1330-33	Garbutt	5.1 to 7-10.4	13 to 10-12	SS/os/rr pp por
1410-22*	Chinkeh	8.1 to 10-13.1	8 to 4-5	SS/tr ig por
1649-52	Fantasque	28.6 to 15.6-17.7	17 to 26	CHT/n ob por
1656-58	Fantasque	20.6 to 9.9-10.4	10 to 11	CHT/mv por
1662-78*	Fantasque	23 to 7.6-13.6	13 to 24	CHT/mv/frc/ig
1669-71*	Fantasque	12.3 to 9.8-13.6	20 to 29-34	CHT/tr mv/xl
1679-89*	Fantasque	24.5 to 20.4-33.2	17 to 15-28	CHT/tr mv por
1692-94*	Fantasque	34.4 to 20.9-24.8	27 to 74(0.2m)	SS/tr sol por
1696-99	Fantasque	52.7 to 20.2-29.7	25 to 10	SS/tr ig por
1702-07	Fantasque	57.6 to 27.4-38	11 to 10-14	SS/tr ig por
1721-24	Mattson	31.5 to 18.8-13.0	29 to 57-14	SS/rr ig por
1730-36	Mattson	58.5 to 25.6-20.0	10 to 8	SS/os/n ob por
1737-39	Mattson	29.4 to 20.2	7 to 31-14	SS/os/ig por
1743-47	Mattson	24.3 to 5.2-13.6	10 to 7	SS/good ig por
1750-52	Mattson	22.0 to 14.6-15.1	6 to 6-7	SS/scat ig por
1753-54	Mattson	27.9 to 19	8 to 4	SS/scat ig por
1756-58	Mattson	28.2 to 20.3-24	7 to 4	SS/scat ig por
1789-94*	Mattson	49.8 to 8.7-27.2	7 to 6-7	SS/tr ig por
1803-06*	Mattson	28.7 to 19-22.8	4 to 8	SS/tr ig por
1807-12	Mattson	28.8 to 14.4-22.2	4 to 6-8	SS/tr ig por
1815-16	Mattson	21.5 to 16.3	3 to 4	SS/tr ig por
1818-20*	Mattson	22.8 to 12.4-13.5	4 to 4-7	SS/tr ig por
1827-28*	Mattson	21.9 to 17.5	4 to 6	SS/tr ig por
1831-33*	Mattson	36.1 to 23-24.5	4 to 7-10	SS/tr ig por
1835-40*	Mattson	36.5 to 10.2-21	10 to 13	SS/tr ig por
1842-46*	Mattson	17.3 to 4-11.5	8 to 10	SS/scat ig por
1848-50	Mattson	46.3 to 13.4-19.8	8 to 4-6	SS/scat ig por
1853-56	Mattson	34.4 to 26.4-30.8	14 to 8-13	SLT/mv/mld por
1856-58	Mattson	26.8 to 19-20.6	13 to 10-11	SS/os/scat por
1867-69*	Mattson	55.4 to 14.5-19.3	15 to 20	SS/tr ig por
1876-92*	Mattson	33.5 to 7.7-30.7	15 to 13-18	SS/scat ig por

SUMMARY OF DRILLING BREAKS AND GAS INCREASES

Interval	Formation	P.R. Change(min/m)	Gas Change(units)	Lithology
1894-95	Mattson	39.2 to 22.2	11 to 10	SS/scat ig por
1897-01	Mattson	35.3 to 25.7-21.2	10 to 7-10	SS/tr ig por
1903-04	Mattson	35.0 to 20.6	10 to 8	SS/tr ig por
1906-08*	Mattson	30.8 to 24.1-26.4	10 to 8	SS/tr ig por
1909-13*	**Mattson**	**40.2 to 1.7-6.5**	**13 to 10-13**	**SS/g ig por**
1955-62	**Mattson**	**49 to 4-5.6**	**8 to 17-21**	**SS/g ig por**
1968-71	Mattson	29.7 to 9.6-17.9	14 to 15 units	SS/scat ig por
1972-73	Mattson	26.9 to 9.6	13 to 14	SS/os/scat por
1980-84	Mattson	31.1 to 22.3-29.6	18 to 14-15	SS/scat ig por
1988-89	Mattson	34.3 to 23.2	17 to 20	SS/scat ig por
1999-00	**Mattson**	**45.8 to 24.7**	**18 to 42**	**SS/tr ig por**
2002-08	Mattson	28.2 to 6.2-13.8	22 to 20-29	SS/scat ig por
2017-19	**Mattson**	**38.8 to 14.2-21.1**	**14 to 43-24**	**SS/scat ig por**
2030-31	**Mattson**	**41.6 to 11.7**	**18 to 172**	**SS/tr ig por**
2044-45	**Mattson**	**38.0 to 25**	**43 to 113**	**SS/tr ig por**

NOTE: Significant intervals are in bold type.
Gas readings are maximum reading in the interval.
os indicates significant fluorescence and cut.
Directional drilled hole from 1654m to 1917m.
*indicates interval was tested.

DST #1 (1906m to 1917m). Partial misrun. NGTS. Recovered 660m of salty water.
DST #2 (1865m to 1892m). Misrun. Recovered 15m of invert.
DST #3 (1819m to 1848m). GTS. 214m3/day. Recovered 100m of gassy invert and 100m of gassy salt water cut invert.
DST #4 (1781m to 1804.4m). NGTS. Recovered 10m of gassy invert.
DST #5 (1405m to 1429m). NGTS. Recovered 45m of invert.
DST #6 (1668m to 1698m). GTS. TSTM. Recovered 290m of contaminated invert and 200m of salt water.
DST #7 (2028m to 2046m). NGTS. Recovered 62m of gasified invert.
DST #8 (1955m to 1965m). Misrun.
DST #9 (1955m to 1965m). NGTS. Recovered 100m of gasified invert, 50m of water cut invert, and 115m of salt water.

C L Consultants Limited

SAMPLE LOG

FILE: 99N-2334

COMPANY:	Paramount Resources Ltd.
WELL:	Paramount et al Liard A-01
LOCATION:	60o 00' 05" 123o 15' 05"
FIELD:	Undefined
PROVINCE:	N.W.T.
GEOLOGIST:	Barry C. Clattenburg
SPUD DATE:	February 9, 1999
FINISH DATE:	March 21, 1999
ELEVATION K.B.:	522.65 m
ELEVATION G.L.:	517.15 m
K.B. - CSG BOWL:	5.5 m

DATA FROM: 0 m
T.D. DRILLER: 2046 m
T.D. LOGGER: 2045 m
HOLE SIZE: 222 mm

PRODUCING FORMATION:	Mattson
BOTTOM FORMATION:	Mattson
STATUS:	Cased Potential Gas Well
CASING:	339.7mm/177.8mm
RIG RELEASED:	
CONTRACTOR:	Precision Drilling Rig 373
MUD SYSTEM:	Invert
SAMPLE QUALITY:	Poor Quality 1360m - 1420m
REMARKS:	
REMARKS:	

DST #1:	1906m - 1917m
DST #2:	1865m - 1892m
DST #3:	1819m - 1848m
DST #4:	See Detailed Test Reports For Add. DSTs.
CORE #1:	1333.0 - 1351.2
E.LOGS #1:	HDIL-GR/ZDL-CN-GR-XY/MAC-GR-CAL/CVL
E.LOGS #2:	HDIL-GR/ZDL-CN-GR-XY/MAC-GR-CAL

ALL LITHOLOGIC SYMBOLS ARE CANSTRAT COMPATIBLE

OIL STAIN

- D - dead
- ○ - questionable (no fluorescence in solvent)
- ◑ - spotty (fluorescence in solvent)
- ● - live

POROSITY

e - earthy
f - fracture
m - moldic
o - inter[oolitic]/[peletal]; organic
p - pinpoint
v - vuggy
x - inter[granular]/[fragmental]/[crystalline]

ROUNDNESS

R - rounded
r - subrounded
a - subangular
A - angular

SORTING

w - well
m - moderate
p - poor

PENETRATION RATE [MIN/CHART DIV.]

TOTAL GAS [units]

OIL INDICATOR [C1/(C3+C4)]

0.1 1 10 100

25 50 min 75

50 100 units 150

Gel Chem Mud

Spudded at 05:30 hrs; 02/09/99

Pason Depth Recorder Not Capturing Data Due To Low String Weight.

WOB 5-10
RPM 80-120

0

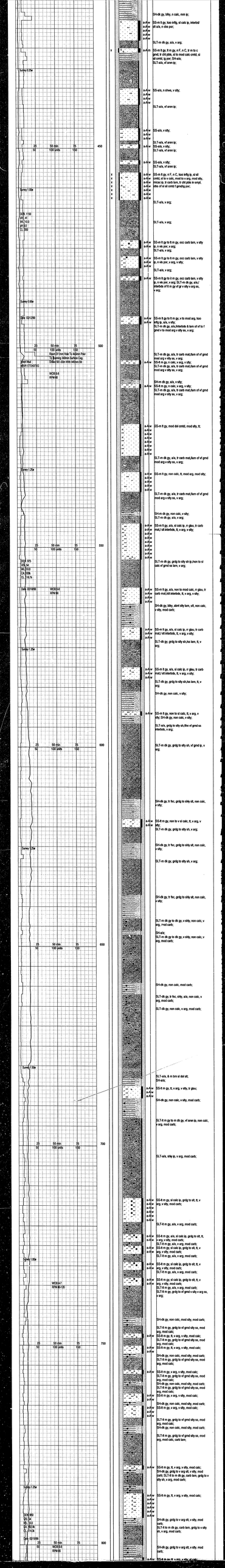
OIL STAIN | POROSITY | % | GRS % | ROUNDING | SORTING | SAMPLE DESCRIPTION

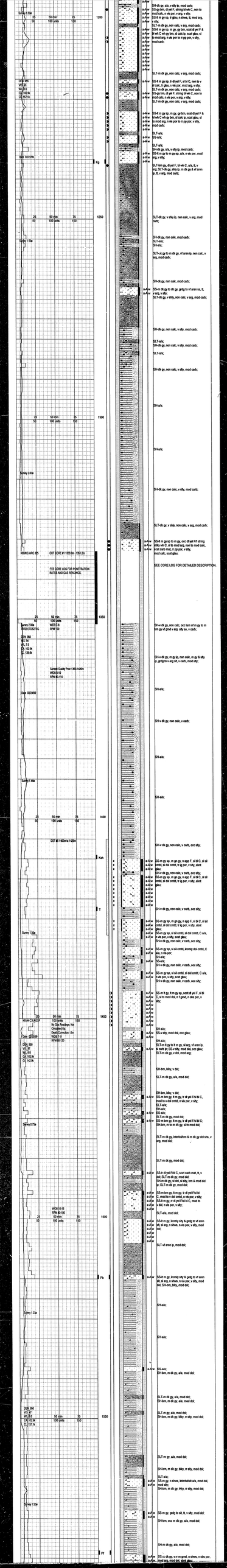
p (6%) silt
f (12%) vf
g (18%) f
e (24%) m
c

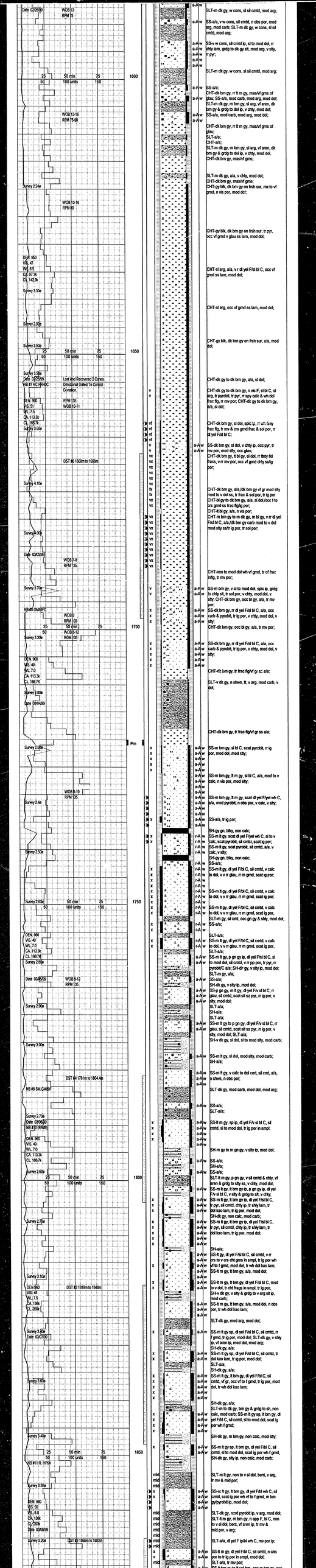
CLST-m dk gy, occ vf to c qtz gms, v sft, abnt arag, mod slty;

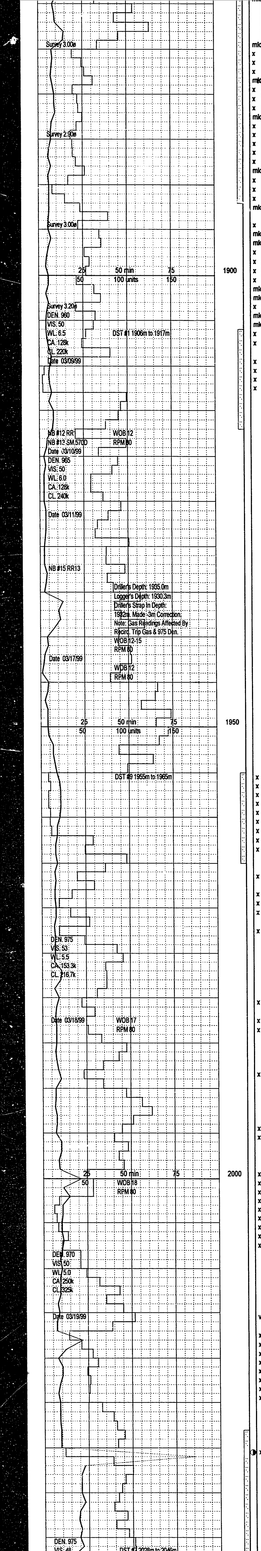
CLST-a/a;

a-A w SS-m gy to m dk gy, abnt arag, tr plcy, n


SH-dk gy, silty, v calc, mm lyr;
SS-m ll gy, tan inflg, sl calc lp, interbd wl silt, n obs por;
SLT-m dk gy, ala, v arg;
SS-m ll gy, fr m gy, v f, rr C, tr m to c gmd, tr ctt pbb, sl to mod calc cmtd, sl wl cmtd, lg por; SH-ala;
SLT-ala, vf anm lyr;
Survey 0.25e
SS-ala, n obs;
SLT-ala, vf anm lyr;
SS-ala, v silty;
SLT-ala, vf anm lyr;
SS-ala, v silty;
SLT-ala, vf anm lyr;
SS-ala, v silty;
SLT-ala, vf anm lyr;
SS-m ll gy, v f, rr C, kao inflg lp, sl wl cmtd, sl to v calc, mod to v arg, mod silty, micac lp, tr carb lam, tr ctt pbb in smpl, intbs of sl wl cmtd f grnsdy por;
Survey 1.00e
SLT-ala, v arg;
SLT-ala, v arg;
SS-m ll gy to ll m gy, occ carb lam, v silty lp, v vk por, v arg;
SLT-m dk gy, ala, v arg;
Survey 0.66e
SS-m ll gy to m gy, v fn mod arg, kao inflg lp, ala, v silty;
SLT-m dk gy, ala,intbeds & lam of vf to f grnd v fn mod arg v silty lm, v arg;
SLT-m dk gy, ala, tr carb mat,lam of vf grnd mod arg v wk ss, v arg;
SS-m ll gy, mod dol cmtd, mod silty, ltr;
SLT-m dk gy, ala, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
Survey 1.25e
SS-m ll gy, non calc, ltr, mod arg, mod silty;
SLT-m dk gy, ala, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
SH-m dk gy, non calc, v silty;
SLT-m dk gy, ala, v silty;
SS-f gy, ala, v arg;
SLT-m dk gy, ala, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
SH-m dk gy, non calc, v silty;
SS-m ll gy, non calc, ltr, mod arg, mod silty;
SLT-m dk gy, ala, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
SH-dk gy, blky, sl calc lp, v gtau, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
SS-m ll gy, ala, non to mod calc, ltr glau, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
SH-dk gy, blky, sl calc lp, v gtau, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
SLT-dk gy, grdg to slty sh,lp,hori to sl calc vf grnd ss lam, v arg;
Survey 1.25e
SS-m ll gy, ala, sl calc lp, v glau, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
SLT-dk gy, grdg to slty sh,lp,hori to sl calc vf grnd ss lam, v arg;
SS-m ll gy, ala, sl calc lp, v glau, tr carb mat,lam of vf grnd mod arg v silty ss, v arg;
SLT-dk gy, grdg to slty sh,lp,hori to sl calc vf grnd ss lam, v arg;
SH-dk gy, non calc, v silty;
SS-m ll gy, non to sl calc, ltr, v arg, v silty; SH-dk gy, non calc, v silty;
SLT-ala, grdg to slty sh,lfm of grnd ss interbds, v arg;
Survey 1.25e
SLT-dk gy, grdg to slty sh, vf grnd lp, v arg;
SH-dk gy, fr lmc, grdg to slty slt, non calc, v silty;
SS-f m gy, non to v sl calc, ltr, v arg, v silty;
SLT-m dk gy, grdg to slty sh, v arg;
Survey 1.25e
SH-dk gy, fr lmc, grdg to slty slt, non calc, v silty;
SLT-m dk gy, ltr dk gy, v silty, non calc, v arg, mod carb;
SH-ala;
SLT-m dk gy to m dk gy, v silty, non calc, v arg, mod carb;
SH-dk gy, non calc, mod carb;
SLT-dk gy, fr lmc, slty, ala, non calc, v arg, mod carb;
SLT-dk gy, non calc, v arg, mod carb;
Survey 1.50e
SLT-ala, & m brn sl dol slt;
SH-ala;
SS-f m gy, ltr, v arg, v silty, tr glau;
SH-dk gy, non calc, v silty, mod carb;
SLT-f m gy to m dk gy, vf anm lp, non calc, v arg, mod carb;
SLT-dk gy, slty, ala, v arg, mod carb;
SS-f m gy, sl calc lp, grdg to slt, ltr, v arg, v silty, mod carb;
SLT-f m gy, ala, v arg, mod carb;
SS-f m gy, sl calc lp, grdg to slt, ltr, v arg, v silty, mod carb;
SLT-f m gy, ala, v arg, mod carb;
SS-f m gy, sl calc lp, grdg to slt, ltr, v arg, v silty, mod carb;
SLT-f m gy, grdg to vf grnd slty ss, v arg, v wvy;
SH-dk gy, non calc, mod slty, mod calc;
SLT-f m gy, grdg to vf grnd slty ss, mod arg, mod calc;
SS-f m gy, ltr, v arg, v silty, mod calc;
SH-dk gy, non calc, mod slty, mod calc;
SLT-f m gy, grdg to vf grnd slty ss, mod arg, mod calc;
SS-f m gy, ltr, v arg, v silty, mod calc;
SH-dk gy, non calc, mod slty, mod calc;
SLT-f m gy, grdg to vf grnd slty ss, mod arg, mod calc;
SH-dk gy, non calc, mod slty, mod calc;
SS-f m gy


Survey 1.50e
50 mm
100 units
15
150
1200
DEN: 900
WCI: 3
AK: 0.1
CE: 1021k
CI: 1021.6
Date: 02/22/09
Kg
1250
Survey 1.50e
1300
Survey 2.00e
WCI: 0
RPM: 0
DEN: 900
WC: 54
VIL: 7.5
CE: 1021k
CI: 1261k
Sample Quality Poor 1360-1420m
WCI: 9-10
RPM: 80-110
Date: 02/24/09
Survey 1.50e
1400
CUT: 0 at 1425m to 1429m
Kcm
T
Survey 1.20e
WCI: 0
RPM: 80-120
Date: 02/25/09
DEN: 900
WC: 37
VIL: 0.0
CE: 1021k
CI: 1421.4k
1450
Survey 0.75e
WCI: 0
RPM: 80-120
Date: 02/26/09
DEN: 900
WC: 37
VIL: 0.0
CE: 1021k
CI: 1521.4k
1500
Survey 1.20e
1550
Survey 1.50e
Pb
SH-ok gy, silk, v silty lp, mod carb;
SS-gy brn, dk yel F, strong bl wh C, non to mod calc, n vis por to lp por, v silty;
SS-dk rn gy to, Y glau, n shws, fl, mod arg, v silty;
SLT-rn dk gy, non calc, v arg, mod carb;
SS-fi rn gy-sp, rn gy, gy brn, scat dl yel F & bl wh C wh gy brn, sl calc to, scat glau, sl to mod arg, n vis por to lp por, v silty, mod carb;
SS-gy brn, dk yel F, strong bl wh C, non to mod calc, n vis por, v arg, v silty;
SLT-rn dk gy, non calc, v arg, mod carb;
SS-fi rn gy-sp, rn gy, gy brn, scat dl yel F & bl wh C wh gy brn, sl calc to, scat glau, sl to mod arg, n vis por to lp por, v silty, mod carb;
SLT-silt;
SS-silt;
SLT-silt;
SH-dk gy, silk, v silty lly, mod carb;
SS-fi rn gy to m gy-sp, silk, n vis por, mod arg, v silty;
SLT-sm gy, dl yel F, bl wh C, silk, fi, v arg; SLT-dk gy, silty lp, m dk gy & sl anm lp, fi, v arg, mod carb;
SLT-rn dk gy, v silty lp, non calc, v arg, mod carb;
SH-dk gy, non calc, mod carb;
SLT-silt;
SH-silt;
SLT-sl gy to m dk gy, vf anm lp, non calc, v arg, mod carb;
SH-dk gy, non calc, mod carb;
SS-m dk gy to dk gy, grdg to vf anm xs, fi, v arg, v silty;
SLT-dk gy, v silty, non calc, v arg, mod carb;
SH-dk gy, non calc, v silty, mod carb;
SLT-silty;
SH-dk gy, non calc, v silty, mod carb;
SLT-silt;
SH-dk gy, non calc, v silty, mod carb;
SH-silt;
SH-silt;
SH-dk gy, non calc, v silty, mod carb;
SLT-dk gy, v silty, non calc, v arg, mod carb;
SS-4 m gy-sp to m gy, occ dl yel F/f stmg silty wh C, sl to mod arg, non to mod calc, scat carb mat, sl pp por, v silty, mod calc, scat glauc
SEE CORE LOG FOR DETAILED DESCRIPTION.
SH-v dk gy, non calc, occ lam of m gy to m brn gy of grad v arg silty ss, v calc;
SH-v dk gy, m gy lly, non calc, m gy & silty gy, grdg to v arg slt, v carb, mod silty;
SH-silt;
SH-v dk gy, non calc, v carb;
SH-silt;
SH-silt;
SH-v dk gy, non calc, v carb;
SS-m gy-sp, m gr gy, n spp F, sl W C, sl sil cmtd, sl dol cmtd, fi lg por, v silty, sbnt glauc
SH-v dk gy, non calc, v carb, occ silty;
SS-m gy-sp, m gr gy, n spp F, sl W C, sl sil cmtd, sl dol cmtd, fi lg por, v silty, sbnt glauc
SH-v dk gy, non calc, v carb, occ silty;
SS-m gy-sp, sl sil cmtd, incrsly dol cmtd, C sls, n vis por;
SH-silt;
SS-silt;
SH-v dk gy, non calc, v carb, occ silty;
SS-m gy-sp, sl sil cmtd, sl dol cmtd, C sls, n vis por, v silty, scat glauc
SH-v dk gy, non calc, v carb, occ silty;
SS-m fi gy, fi m gy-sp, scat dl yel F, sl W C, sl to mod dol, sl f grnd, n sbs por, v silty;
SH-silt;
SS-silty, mod dol, occ glauc
SH-silt;
SLT-m fi gy to fi m gy, sl arg, vf anm lp, sl carb lp; SS-v vfg, mod dol, occ glauc
SLT-rn dk gy-v dk, mod arg;
SH-bln, bby, v dol;
SLT-rn dk gy, silk, mod dol;
SH-bln, bby, v dol;
SS-m brn gy, fi m gy, fi dl yel F/sl W C, mod to v dol cmtd, n vis por, v silty;
SLT-silt;
SH-silt;
SS-silt;
SLT-rn dk gy, mod dol;
SS-m brn gy, fi m gy, fi dl yel F/sl W C; SH-bln, m to rn dk gy, slt to mod dol;
SLT-rn dk gy, interbdded & rn dk gy dol shs, v arg, mod dol;
SLT-rn dk gy, mod dol;
SS-4 dl yel F/sl C, scat carb mat, fi, v dol; SLT-rn dk gy, mod dol;
SH-rn dk gy, sl dol, sl slty, bm & mod dol ip; SLT-rn dk gy, mod dol;
SS-m brn gy, fi m gy, fi dl yel F/sl W C, mod to v dol cmtd, v vis por, v silty;
SS-4 m gy-sp, fi dl yel F/sl W C, mod to v dol, n vis por, v silty;
SLT-silt, mod dol;
SS-4 m gy, incrsly slty & grdg to vf anm slt, sl arg, n shws, n vis por, v slty, mod dol;
SLT-vf anm lp, mod dol;
SS-gl m gy, incrsly slty & grdg to vf anm slt, sl arg, n shws, n vis por, v slty, mod dol; SH-bm, bby, mod dol;
SH-silt;
SH-silt;
SS-silt;
SH-bm, m dk gy, silk, mod dol;
SLT-rn dk gy, silk, mod dol;
SH-bm, m dk gy, silk, mod dol;
SLT-m gy, silk, mod dol;
SH-bm, m dk gy, bby, rr silty, mod dol;
SLT-m gy, silk, mod dol;
SH-brn, m dk gy, bby, rr silty, mod dol;
SLT-silt;
SS-m gy, n shws, interbdded silk, mod dol, mod silty;
SH-bm, m dk gy, frly, rr silty, mod dol;
SS-m gy, grdg to slt, fi, v silty, mod dol;
SH-brn, occ m dk gy, silk, mod dol;
SH-rn dk gy, silk, mod dol;
SS-rn dk gy, v rr m gmd, n shws, v dol, v poor, mod arg, mod dol, sbnt glauc


Date 02/26/99
WOB 13
RPM 75
25
50 min
75
50
100 units
150
1600
WOB 13-16
RPM 75-80
Survey 2.24e
WOB 13-16
RPM 80
DGR 950
VIS 47
WL 8.5
CA 97.1k
CL 142.6k
Survey 3.00e
Survey 3.50e
Survey 3.50e
Date 02/28/99
WB #7 HC HP/ACC
Directional Drilled To Control
Deviation.
Lost And Recovered 2 Cones.
RPM 135
WOB 10-11
DEN 960
VIS 51
WL 7.5
CA 113.3k
CL 166.7k
Survey 3.60e
1650
DST #6 1668m to 1698m
Survey 4.10e
Survey 4.00e
Date 03/02/99
WOB 7-8
RPM 135
Survey 3.70e
NB #8 GM60FC
WOB 9
RPM 100
WOB 8-12
RPM 135
1700
Survey 3.30e
DEN 960
VIS 49
WL 7.0
CA 113.3k
CL 166.7k
Survey 2.80e
Date 03/04/99
Pm
Survey 2.50e
WOB 9-10
RPM 135
Survey 2.4e
Survey 2.50e
Survey 2.60e
50
100 units
150
1750
DEN 960
VIS 49
WL 7.0
CA 113.3k
CL 166.7k
Survey 2.90e
Date 03/05/99
WOB 8-12
RPM 135
Survey 2.90e
Survey 3.00e
DST #4 1781m to 1804.4m
NB #9 SM GM60F
Survey 2.70e
Date 03/06/99
NB #10 (RR#8)
DEN 960
VIS 49
WL 7.0
CA 113.3k
CL 166.7k
Survey 2.60e
1800
Survey 2.70e
Survey 3.10e
DEN 960
VIS 48
WL 7.5
CA 136k
CL 200k
DST #3 1819m to 1840m
Survey 3.40e
Survey 3.60e
Date 03/07/99
1850
NB #11 R. RP#8
Survey 3.30e
DEN 960
VIS 50
WL 8.0
CA 136k
CL 200k
Date 03/08/99
Survey 3.20e
DST #2 1865m to 1882m
SLT-m dk gy, w cons, sl sil cmtd, mod arg;
SS-a/a, v w cons, sil cmtd, n obs por, mod arg, mod carb; SLT-m dk gy, w cons, sl sil cmtd, mod arg;
SS-v w cons, sil cmtd ip, sli to mod dol, rr shly lam, grdg to dk gy sil, mod arg, v slty, fr pyr;
SLT-m dk gy, w cons, sl sil cmtd, mod arg;
SS-a/a;
CHT-dk brn gy, rr lt m gy, mas/vf grns of glau, SS-a/a, mod carb, mod arg, mod dol;
SLT-m dk gy, m brn gy, sl arg, vf aren, dk brn gy & grdg to dol ip, v chty, mod dol;
SS-a/a, mod carb, mod arg, mod dol;
CHT-dk brn gy, rr lt m gy, mas/vf grns of glau;
SLT-a/a;
CHT-a/a;
SLT-m dk gy, m brn gy, sl arg, vf aren, dk brn gy & grdg to dol ip, v chty, mod dol;
CHT-dk brn gy, mas/vf grns;
SLT-m dk gy, a/a, v chty, mod dol;
CHT-dk brn gy, mas/vf grns;
CHT-gy blk, dk brn gy cm frsh sur, mx to vf grnd, n vis por, mod dct;
CHT-gy blk, dk brn gy cm frsh sur, tr pyr, occ vf grnd v glau ss lam, mod dol;
CHT-sl arg, a/a, v rl dy peil Flsl bl C, occ vf grnd ss lam, mod dol;
CHT-sl arg, occ vf grnd ss lam, mod dol;
CHT-gy blk, dk brn gy cm frsh sur, a/a, mod dol;
CHT-dk gy to dk brn gy, a/a, sl dol;
CHT-dk gy to dk brn gy, n vis F, sl bl C, sl arg, tr pyrobit, tr pyr, rr spy calc & wh dol lfrac fig, rr mv por; CHT-dk gy to dk brn gy, a/a, sl dol;
CHT-dk brn gy, sl dol, spic lp, rr sli fnly frac fig, tr mv & crs grnd frac & sol por, rr dl yel Flsl bl C;
SS-dk brn gy, sl dol, v chty lc, occ pyr, tr mv por, mod shy, occ glau,
CHT-dk brn gy, tr lt gy, sl dol, rr finly fld fracs, v rr mv por, occ vf grnd chty ss/g por;
CHT-dk brn gy, sl dol, v chty lc, occ pyr, tr frac fig, tr mv por, occ vf grnd chty ss/g por;
CHT-dk brn gy, slt-m dk gy, m blk gy, v rr dl yel Flsl bl C, a/a,/dk brn gy carb mod to v dol mod shy ss/tr ig por, tr sol por;
CHT-dk brn gy, a/a,/dk brn gy vf gr mod shy mod to v dol ss, tr frac & sol por, tr ig por CHT-st gy to dk brn gy, a/a, sl dol,occ f to crs grnd ss frac fig/ig por;
CHT-a/a, gy, a/a, n vis por;
CHT-m brn gy to m dk gy, m bl gy, v rr dl yel Flsl bl C, a/a,/dk brn gy carb mod to v dol mod shy ss/tr ig por, tr sol por;
CHT-non to mod dol wh vf grnd, tr of frac infig, tr mv por;
SS-m brn gy, v sl to mod dol, spic lp, grdg to chty slt, tr sol por, v chty, mod dol, v shy; CHT-dk brn gy, occ bl gy, a/a, tr mv por;
SS-dk brn gy, rr dl yel Flsl bl C, a/a, occ carb & pyrobit, tr ig por, v chty, mod dol, v shy;
CHT-dk brn gy, occ bl gy, a/a, tr mv por;
SS-dk brn gy, rr dl yel Flsl bl C, a/a, occ carb & pyrobit, tr ig por, v chty, mod dol, v shy;
CHT-dk brn gy, tr frac fig/vf gr ss;
SLT-v gy, n shws, tt, v arg, mod carb, v sbt;
CHT-dk brn gy, tr frac fig/vf gr ss a/a;
SS-m brn gy, sl bl C, scat pyrobit, rr ig por, mod dol, mod shy;
SS-m brn gy, lt m gy, sl bl C, a/a, mod to v calc, n vis por, mod shy;
SS-m brn gy, lt m gy, scat dl yel Flyel wh C, a/a, mod pyrobit, n obs por, v calc, v slty;
SS-a/a, tr ig por;
SH-gy gn, blky, non calc;
SS-m lt gy, scat dl yel Flyel wh C, sl to v calc, scat pyrobit, sil cmtd, scat ig por;
SS-m lt gy, scat pyrobit, sil cmtd, a/a, v calc, v slty;
SH-gy gn, blky, non calc;
SS-a/a;
SS-m lt gy, dl yel Flbl C, sil cmtd, v calc to dol, v v rr glau, rr m grnd, scat ig por;
SS-m lt gy, dl yel Flbl C, sil cmtd, v calc to dol, v v rr glau, rr m grnd, scat ig por;
SS-m lt gy, dl yel Flbl C, sil cmtd, v calc to dol, v v rr glau, rr m grnd, scat ig por, SLT-m gy, sil cmt, occ gn gy & slty, mod dol;
SS-a/a;
SLT-a/a;
SS-m lt gy, dl yel Flbl C, sil cmtd, v calc to dol, v v rr glau, rr m grnd, scat ig por, SLT-a/a;
SS-m lt gy, p gn gy lo, dl yel Flsl bl C, sl to mod dol, sil cmtd, v rr pp por, tr pyr, rr pyrobit;C a/a; SH-dr gy, v slty lo, mod dol;
SLT-m gy, a/a;
SS-a/a;
SH-dk gy, v slty lo, mod dol;
SS-p gn gy, m lt gy, dl yel Fv sl bl C, rr glau, sil cmtd, scat slt sz pyr, rr ig por, v slty, mod dol;
SLT-a/a;
SH-a/a;
SLT-a/a;
SS-m lt gy to p gn gy, dl yel Fiv sl bl C, rr glau, sil cmtd, scat slt sz pyr, rr ig por, v slty, mod dol; SLT-a/a;
SH-v dr gy, sl dol, sl to mod slty, mod carb;
SS-m lt gy, sl dol, mod slty, mod carb;
SH-a/a;
SS-m lt gy, v calc to dol cmt, sil cmt, a/a, n shws, n obs por;
SLT-dk gy, mod carb, mod dol, mod arg;
SS-a/a;
SLT-a/a;
SS-lt m gy, sp lp, dl yel Fiv sl bl C, sil cmtd, sl to mod dol, tr ig por in smpl;
SH-m gy to m gn gy, v slty ip, mod dol;
SS-a/a;
SH-a/a;
SS-a/a;
SLT-lt m gy, p gn gy, v sil cmtd & chty, vf aren & grdg to slty ss, v chty, mod dol;
SS-m lt gy, lt brn gy lo, p gn gy lo, dl yel Fiv sl bl C, v slty & grdg to slt, v chty;
SS-m lt gy, lt brn gy lo, dl yel Flsl bl C, tr pyr, sil cmtd, chty ip, tr shly lam, tr dol laso lam, tr ig por, mod dol;
SH-dk gy, non calc, mod carb;
SS-m lt gy, lt brn gy lp, dl yel Flsl bl C, tr pyr, sil cmtd, chty ip, tr shly lam, tr dol laso lam, tr ig por, mod dol;
SH-a/a;
SS-lt gy, dl yel Flsl bl C, sil cmtd, v rr pp lam to v crs cht grns in smpl, tr ip por wh vf to f grnd, mod dol, tr wh dol laso lam;
SS-lt m gy, lt brn gy, a/a, mod dol;
SS-lt m gy, dl yel Flsl bl C, mod dol to v dol, tr cht frags in smpl, tr ig por, SH-v dk gy, v slty & grdg to v arg sit ip, mod carb;
SS-lt m gy, lt brn gy, a/a, mod dol, n obs por, tr wh dol laso lam;
SLT-dk gy, mod arg, mod dol;
SS-m lt gy sp, dl yel Flsl bl C, sil cmtd, rr grnd, tr ig por, mod dol; SLT-dk gy, v shy ip, vf aren ip, mod dol, mod arg;
SH-dk gy, a/a;
SS-m lt gy sp, dl yel Flsl bl C, sil cmtd, tr dol laso lam, tr ig por, mod dol;
SLT-a/a;
SH-dk gy, a/a;
SS-lt gy, lt brn gy, dl yel Flbl C, sl cmtd, vf gr, occ vf to f grnd, tr ig por, mod dol, tr wh dol laso lam;
SH-dk gy, a/a;
SLT-m to dk gy, brn gy & grdg to sh, non calc, mod carb; SS-m lt gy sp, lt brn gy, dl yel Flbl C, sil cmtd, sl to mod dol, scat lg por wh f grnd;
SH-dk gy, m brn gy, non calc;
SS-m lt gy sp, lt brn gy, dl yel Flbl C, sil cmtd, sl to mod dol, scat lg por wh f grnd, SH-dk gy, slty ip, non calc, mod carb;
SLT-m lt gy, non to v sl dol, bent, v arg, tr mv & mld por;
SS-lt m gy, lt brn gy, dl yel Flbl wh C, sil cmtd, scat lg por wh vf to f grnd, m brn gy/pyrobit ip, mod dol;
SLT-dk gy, rcnd pyrobit ip, v arg, mod dol;
SLT-lt m gy, m brn gy, n app F, bl C, non to v sl dol, bent, vf aren ip, tr mv & mld por, v arg;
SLT-a/a, dl yel F ip/bl wh C, mv por ip;
SS-lt m gy, dl yel Flbl C, sil cmtd, n obs por to tr ig por in smpl, mod dol;
SLT-a/a, tr mv por;
SS-lt m gy, dl yel Flbl C, sil cmtd, n obs por to tr ig por in smpl, mod dol;
SLT-a/a, tr mv por;



CORE 1 - 1333.0 - 1351.2 Cut: 18.2 m Rec.: 18.2

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

UNITED GEOCOM REPORT

N.E.B. COPY

UNITED
GeoCom Drilling Services
A Computalog Ltd. & Geoservices N.A. Ltd. Joint Venture

COMPLETION

FOR

PARAMOUNT RESOURCES LIMITED

PARAMOUNT ET AL LIARD

FROM SURFACE LOCATION:

LAT 60-05-27, LONG. 123-22-06

WELL FILE: **9185 C**

99-03-29

UNITED GEOCOM DRILLING SERVICES
9204 - 37th AVENUE
EDMONTON, AB, CANADA T6E 5L4
PHONE: (780) 462-6300
FAX: (780) 466-6002

UNITED GEOCOM DRILLING SERVICES
2140 530 - 8 TH AVENUE, S.W.
CALGARY, AB, CANADA T2P 3S8
PHONE: (403) 218-2400
FAX: (403) 218-2401

UNITED GEOCOM DRILLING SERVICES

Client : PARAMOUNT RESOURCES LIMITED
Well Name : PARAMOUNT ET AL LIARD
Location : LAT 60-05-27, LONG. 123-22-06

Date : 1999-03-29
File : 9185C

Vertical Section Calculated Along AZ 0.00°

MD m	INC deg	DIR deg	TVD m	LAT m	DEP m	VS m	D'LEG °/30	BUILD °/30	TURN °/30
				TIE-ON					
1494.00	0.80	131.05	1493.70	-10.13	2.77	-10.13	0.00	0.00	0.0
1513.00	0.86	126.15	1512.70	-10.30	2.99	-10.30	0.15	0.09	-7.7
1533.00	0.72	157.81	1532.70	-10.51	3.15	-10.51	0.68	-0.21	47.5
1552.00	1.12	186.79	1551.69	-10.80	3.18	-10.80	0.95	0.63	45.8
1571.00	1.03	205.38	1570.69	-11.14	3.08	-11.14	0.57	-0.14	29.4
1590.00	1.97	224.97	1589.68	-11.53	2.78	-11.53	1.67	1.48	30.9
1608.00	3.28	232.05	1607.67	-12.06	2.15	-12.06	2.25	2.18	11.8
1628.00	2.75	234.00	1627.64	-12.69	1.31	-12.69	0.81	-0.79	2.9
1647.00	2.34	238.91	1646.62	-13.16	0.61	-13.16	0.73	-0.65	7.8
1665.00	2.59	240.08	1664.60	-13.56	-0.05	-13.56	0.42	0.42	2.0
1684.00	2.21	253.51	1683.58	-13.87	-0.78	-13.87	1.07	-0.60	21.2
1702.00	2.05	262.91	1701.57	-14.01	-1.43	-14.01	0.64	-0.27	15.7
1722.00	2.02	260.05	1721.56	-14.12	-2.13	-14.12	0.16	-0.04	-4.3
1741.00	2.01	260.01	1740.55	-14.23	-2.79	-14.23	0.00	-0.02	-0.1
1760.00	1.62	277.77	1759.54	-14.25	-3.38	-14.25	1.07	-0.62	28.0
1779.00	1.29	301.07	1778.53	-14.11	-3.83	-14.11	1.06	-0.52	36.8
1798.00	1.01	301.07	1797.53	-13.91	-4.16	-13.91	0.44	-0.44	0.0
1818.00	1.10	281.19	1817.53	-13.78	-4.50	-13.78	0.56	0.14	-29.8
1837.00	0.96	264.76	1836.52	-13.76	-4.84	-13.76	0.51	-0.22	-25.9
1856.00	1.77	232.41	1855.52	-13.95	-5.23	-13.95	1.72	1.28	-51.1
1874.00	2.54	230.31	1873.50	-14.38	-5.76	-14.38	1.29	1.28	-3.5
1894.00	2.77	252.32	1893.48	-14.81	-6.56	-14.81	1.56	0.35	33.0
1913.00	2.71	256.73	1912.46	-15.05	-7.43	-15.05	0.35	-0.09	7.0
1932.00	1.40	277.41	1931.45	-15.12	-8.10	-15.12	2.34	-2.07	32.7
1951.00	0.72	357.56	1950.45	-14.98	-8.33	-14.98	2.31	-1.07	99.0
1970.00	1.98	50.37	1969.44	-14.65	-8.09	-14.65	2.60	1.99	83.4
1989.00	3.31	60.03	1988.42	-14.16	-7.36	-14.16	2.21	2.10	15.3
2008.00	5.30	67.39	2007.37	-13.55	-6.07	-13.55	3.25	3.14	11.6
2016.00	6.64	68.49	2015.32	-13.24	-5.30	-13.24	5.04	5.02	4.1
2019.82	8.30	74.80	2019.11	-13.09	-4.83	-13.09	14.52	13.04	49.6
2028.78	7.60	77.60	2027.98	-12.79	-3.63	-12.79	2.68	-2.34	9.4
2038.35	6.40	81.50	2037.48	-12.58	-2.48	-12.58	4.04	-3.76	12.2
2047.76	5.10	83.10	2046.84	-12.45	-1.55	-12.45	4.18	-4.14	5.1
2057.30	4.50	88.90	2056.35	-12.39	-0.75	-12.39	2.42	-1.89	18.2
2067.10	3.80	100.50	2066.13	-12.44	-0.05	-12.44	3.34	-2.14	35.5

UNITED GEOCOM DRILLING SERVICES

Client : PARAMOUNT RESOURCES LIMITED
Well Name : PARAMOUNT ET AL LIARD
Location : LAT 60-05-27, LONG. 123-22-06

Date : 1999-03-29
File : 9185C

Vertical Section Calculated Along AZ 0.00°

MD m	INC deg	DIR deg	TVD m	LAT m	DEP m	VS m	D'LEG °/30	BUILD °/30	TURN °/30
2076.74	3.00	95.00	2075.75	-12.52	0.52	-12.52	2.69	-2.49	-17.1
2110.00	**1.80**	**95.00**	**2108.98**	**-12.64**	**1.90**	**-12.64**	**1.08**	**-1.08**	**0.0**

Closure to TD: 12.78m @ AZ 171.45°

UNITED GeoCom Drilling Services

COMPLETION REPORT

COMPANY: PARAMOUNT RESOURCES LIMITED
WELL: PARAMOUNT ET AL LIARD
LOCATION: LAT 60-05-27, LONG. 123-22-06

FILE: 9185 C
DATE: 99-03-29
TYPE:

TOTAL DEPTH CO-ORDINATES

RECTANGULAR		POLAR	MAGNETIC DECLINATION
LAT:-12.64 m	DEP: 1.9 m	12.78 m @ AZ: 171.45°	

COMPLETED TVD: 2108.98 m MEASURED DEPTH: 2110 m

PROPOSED WELL

SURFACE: ; SEC
TARGET: ; SEC

SURFACE TO TARGET

RECTANGULAR		POLAR
LAT:	DEP:	@ AZ:

TARGET TVD: PROJECTED TD:

COMMENTS:

Completion Date: 99-03-29

NOTE: DISTANCES & DEPTHS ARE IN METRES AND DECIMALS.
INCLINATIONS & DIRECTION ARE IN DECIMAL DEGREES
METHOD OF CALCULATION: *MINIMUM CURVATURE*
Dleg/Build: °/30m Intervals.
(-) VALUES INDICATE SOUTH FOR LATITUDE & WEST FOR DEPARTURE.
ALL DEPTHS BASED ON KB ELEVATION

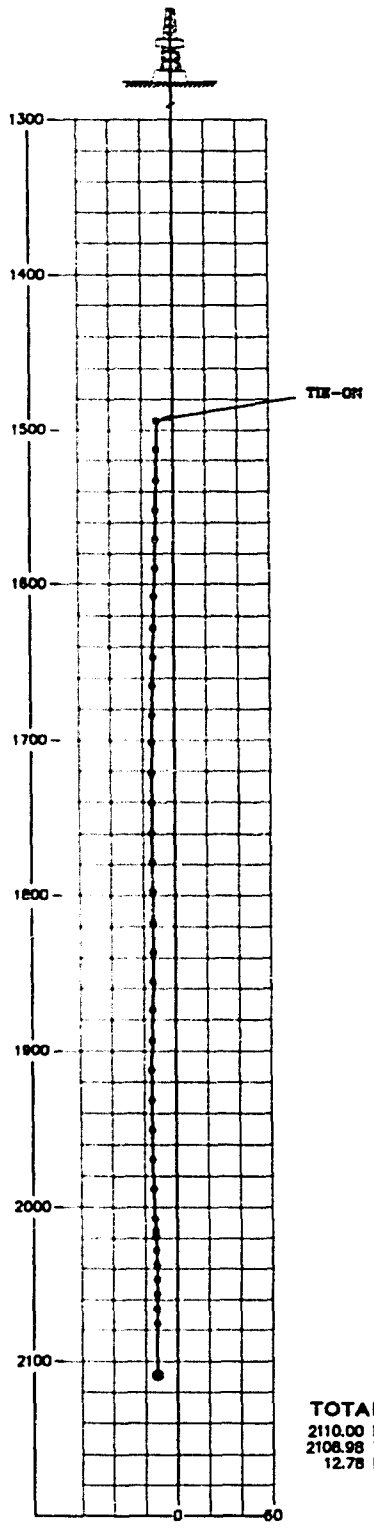
PARAMOUNT ET AL LIARD

CLOSURE TO TD : 12.78m @ AZ 171.45°

N

VERTICAL PROJECTION

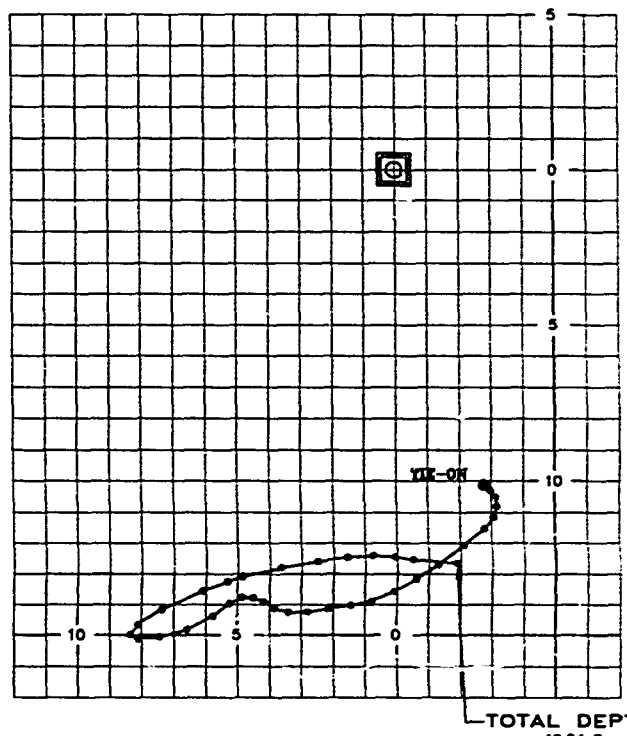
SCALE 1 Unit = 20 m



TOTAL DEPTH:
2110.00 Measured Depth
2108.98 True Vertical Depth
12.78 Horizontal Displacement

HORIZONTAL PROJECTION

SCALE 1 Unit= 1 m



TOTAL DEPTH:
12.64 S
1.90 E

UNITED GeoCom Drilling Services
A Computalog Ltd. & Geoservices N.A. Ltd. Joint Venture
Edmonton - Oper. (403) 455-6800 ; Calgary - Sales & Engineering (403) 216-9400

LAT. 60° 05' 27"
LONG. 123° 22' 08"

COMPANY:	PARAMOUNT RESOURCES LIMITED
WELLNAME	PARAMOUNT ET AL LIARD
LOCATION	LAT. 60°05'27.0",LONG. 123°22'08.0"
FILE	9185C
PROPOSAL/COMPLETION	C
DATE	98/03/29

DST REPORTS (#1 - #9)

N.E.B. COPY

BAKER HUGHES

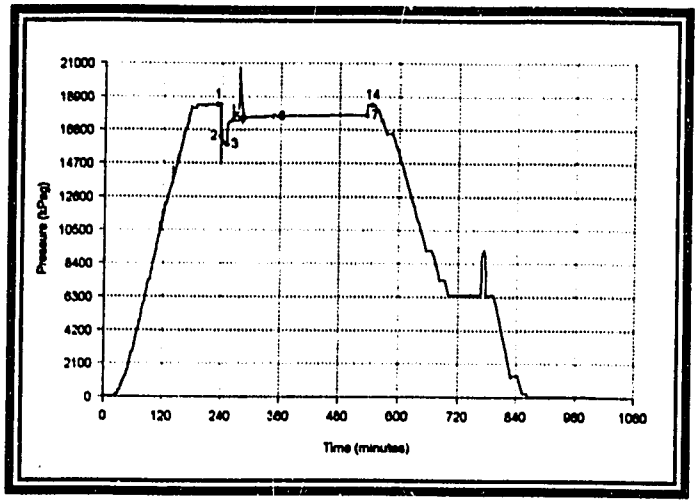
PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 1

Baker Oil Tools

Formation: Tight Hole
Interval - from: 1,906.00 **to:** 1,917.00 meters

Test Date: 1999-03-09
Test Type : Conventional Bottom Hole

Recorder# N60 at 1,908.00 meters



Max Btm Hole Temperature @ FSI: 64.4 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	18378		
2	Start of 1st Flow	16366		
3	End of 1st Flow	15864	11.5	
4	End of 1st Shut-in	17399	13.5	17535.8
5	Start of 2nd Flow	17548		
6	End of 2nd Flow	17626	60.0	
7	End of 2nd Shut-in	17695	190.0	17730.5
14	Final Hydrostatic	18326		

Liquid Recovery 661.00 meters

Salinity : 22 000 g/m3

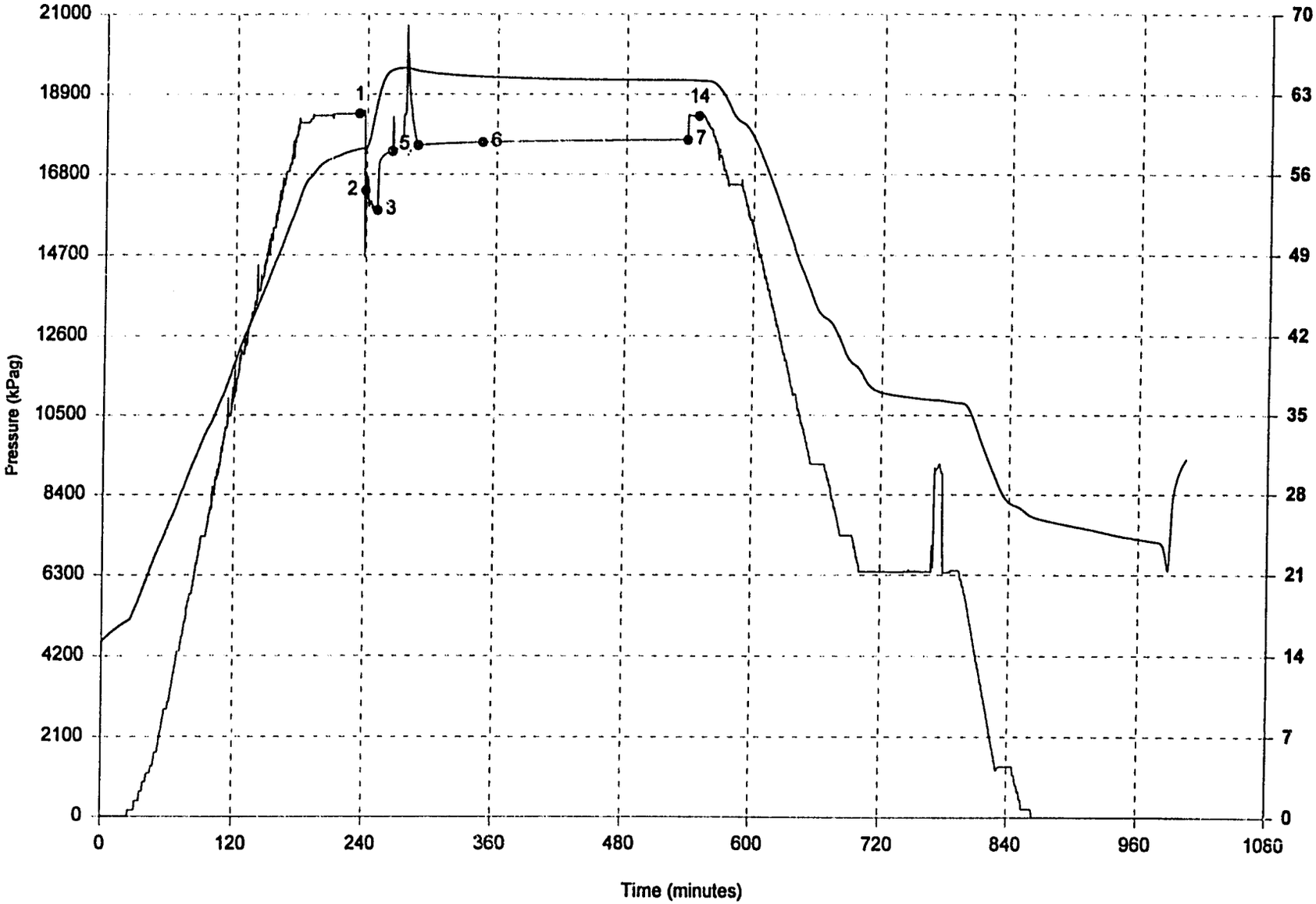
Recovery	*Description*
108.00 m	Invert
553.00 m	Salt water

Remarks:

The available results suggest high permeability within the interval tested. The tool became plugged during the preflow with sand. This resulted in falsely high flowing pressures. The shut-in pressures should be valid as it appears sufficient influx from the formation was obtained.

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 1
Recorder: N60

Pressure (kPag) at Critical Points:
1: 18378 4: 17399 7: 17695
2: 16366 5: 17548 14: 18326
3: 15864 6: 17626



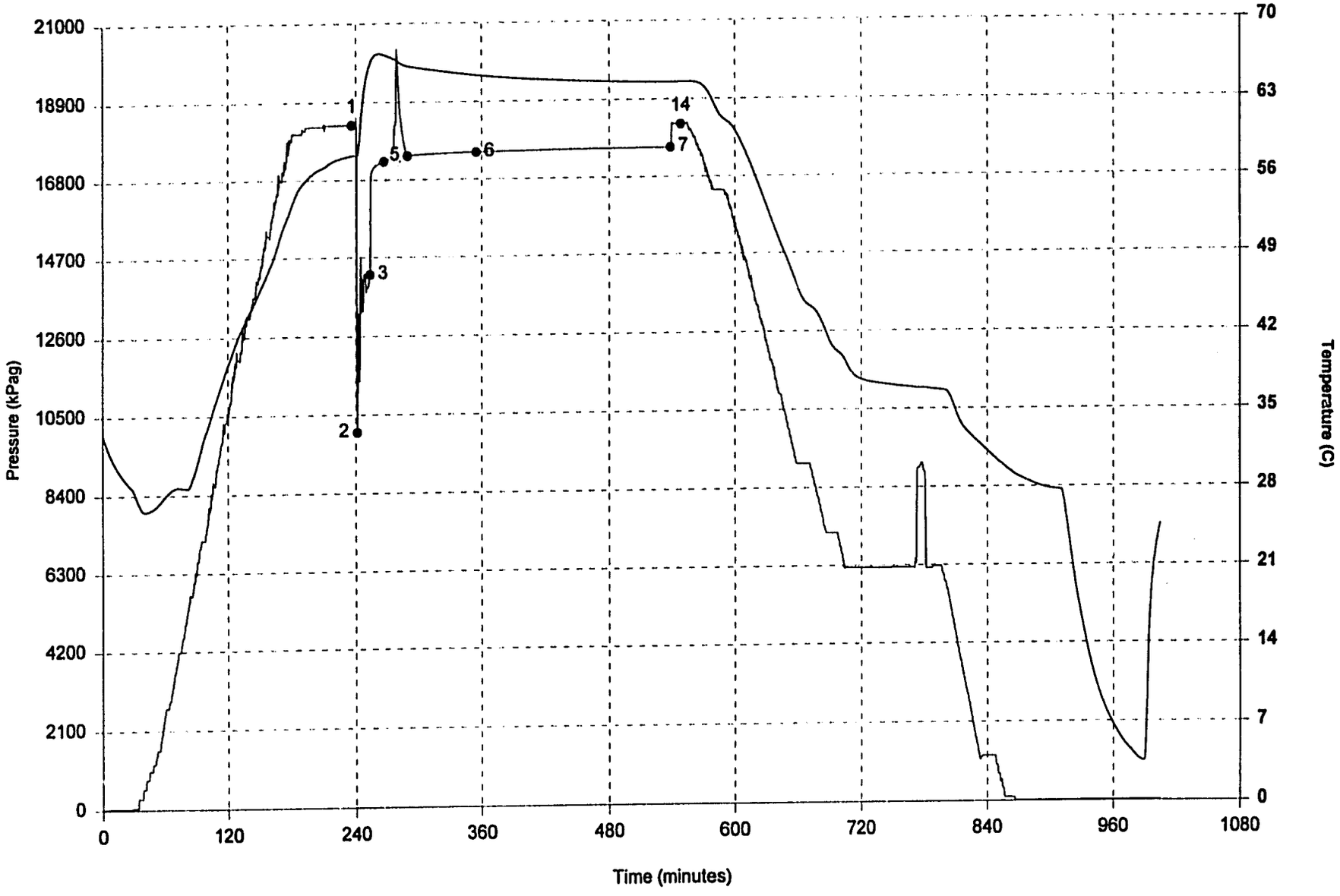
BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 1
Recorder: N19

Above Interval

Pressure (kPag) at Critical Points:

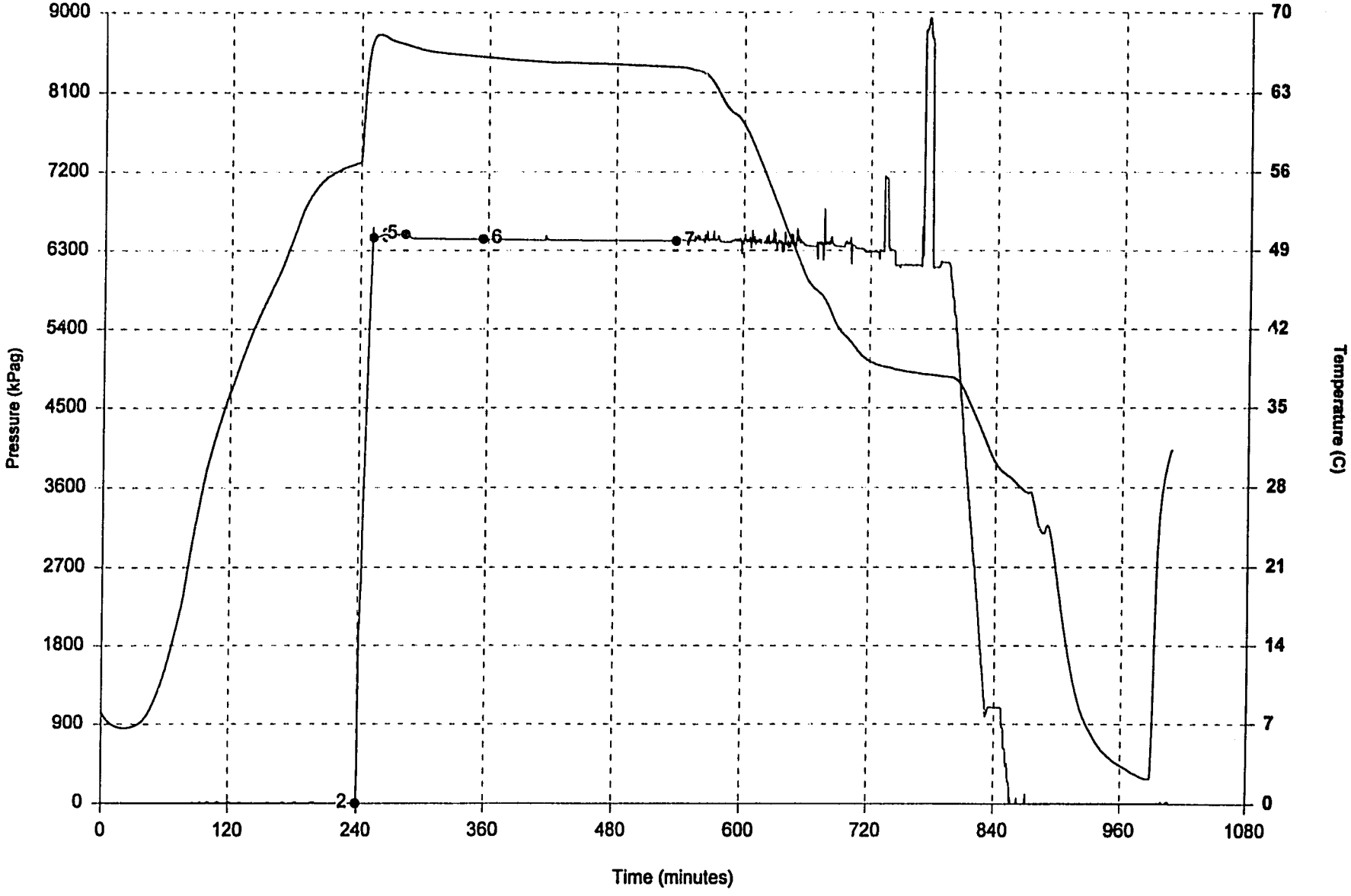
1: 18276	4: 17290	7: 17586
2: 10030	5: 17438	14: 18215
3: 14235	6: 17512	



PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 1
Recorder: K71

Pressure (kPag) at Critical Points:
2: 0 6: 6430
3: 6445 7: 6407
5: 6485

Recovery recorder



PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 1

General Information:

Operator: Paramount Resources Ltd.
4000, 350 - 7th Avenue S.W.
Calgary Alberta T2P 3W5

Tester: Allan B
Ticket#: 808897
Reverse Circulated? Y
KB Elevation: 522.40 meters
Ground Elevat'n: 517.40 meters
Total Depth: 1,917.00 meters

Mud Data:

Weight: 960 kg/m3
Type: Invert
Viscosity: 44 s/l

Hole Data:

Conditioned prior to this test? N

Recorder Summary:

Recorder#	*Type*	*Position*	*Capacity*	*Units*	*Depth*	*Comments*
K71	ZI	Inside	68900	kPag	1,890.00	Recovery recorder
N19	ZI	Inside	34500	kPag	1,893.00	Above interval
9986	K-3	Outside	20300	kPag	1,908.00	
N60	ZI	Outside	34500	kPag	1,908.00	

Distributions:

Reports Sent To: Wayne Tomm
Fluid Samples - no of: 4 Sent To: Agat

Bottom Hole Sampler#	*Sent To*
246	Agat

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 1

Tool Sequence:

Diagram	Description	Length
	Pump Out Sub	0.33 m
	Cross Over Sub	0.30 m
	Pump Out Sub	0.33 m
	Recorder Carrier	1.38 m
	Rotating Shut-in Tool	2.58 m
	Bottom Hole Sampler	1.03 m
	Hydraulic Tool	1.50 m
	Recorder Carrier	1.38 m
	Real Time Gauge	4.60 m
	Hydraulic Jars	2.22 m
	Safety Joint	0.65 m
	Conventional Packer	2.28 m
	Conventional Packer	1.24 m
	Packer Stick Down	1.04 m
	Recorder Carrier	2.06 m
	Perforations	4.59 m
	Spacing	4.86 m
	Anchor Shoe (Bull Nose)	0.60 m

Tool String Length:	32.97 m
Drill Collar I.D.: 57 mm	115.02 m
Drill Pipe O.D.: 114 mm	1,772.53 m
Collar Pipe Total:	1,887.55 m
Stick Up:	1.37 m
Tool Above:	19.82 m
Interval Tested:	11.00 m
Bottom Hole Choke Size:	12.70 mm

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 1
Recorder# N60

Build-up and Flow Curve Increments

Flow# 1

Chart Label	Time (min)	Pressure (kPag)
2	0.0	16366
	1.0	16315
	2.0	16449
	3.0	15951
	4.0	16036
	5.0	16119
	6.0	16035
	7.0	16005
	8.0	15852
	9.0	15827
	10.0	15826
	11.0	15866
3	11.5	15864

Shut-in# 1

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	0.0		15864		
	1.0	1176	17040	12.5000	
	2.0	1285	17149	6.7500	
	3.0	1341	17205	4.8333	
	4.0	1379	17243	3.8750	
	5.0	1408	17272	3.3000	*
	6.0	1432	17296	2.9167	*
	7.0	1452	17316	2.6429	*
	8.0	1469	17333	2.4375	*
	9.0	1484	17348	2.2778	*
	10.0	1499	17363	2.1500	*
	11.0	1511	17375	2.0455	*
	12.0	1523	17387	1.9583	*
	13.0	1532	17396	1.8846	*
4	13.5	1535	17399	1.8519	*

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
5	0.0	17548
	1.5	17550
	3.0	17542
	4.5	17559
	6.0	17562
	7.5	17565
	9.0	17568
	10.5	17571
	12.0	17574
	13.5	17576
	15.0	17579
	16.5	17581
	18.0	17583
	19.5	17586
	21.0	17588
	22.5	17590
	24.0	17592
	25.5	17594
	27.0	17596
	28.5	17598
	30.0	17599
	31.5	17601
	33.0	17603

Shut-in# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	0.0		17626		
	4.0	3	17629	18.8750	
	8.0	5	17631	9.9375	
	12.0	8	17634	6.9583	
	16.0	10	17636	5.4688	
	20.0	12	17639	4.5750	
	24.0	15	17641	3.9792	
	28.0	17	17643	3.5536	
	32.0	19	17645	3.2344	
	36.0	21	17647	2.9861	
	40.0	23	17649	2.7875	
	44.0	25	17651	2.6250	
	48.0	26	17652	2.4896	
	52.0	28	17654	2.3750	
	56.0	30	17656	2.2768	
	60.0	31	17658	2.1917	
	64.0	33	17659	2.1172	
	68.0	34	17660	2.0515	
	72.0	36	17662	1.9931	
	76.0	38	17664	1.9408	
	80.0	39	17665	1.8938	
	84.0	40	17667	1.8512	
	88.0	42	17668	1.8125	
	92.0	43	17670	1.7772	

Note: Increment listing is filtered to include critical data only. Complete time/pressure data is available in electronic or printed format.

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 1
Recorder# N60

Build-up and Flow Curve Increments

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
	34.5	17605
	36.0	17606
	37.5	17607
	39.0	17609
	40.5	17610
	42.0	17612
	43.5	17613
	45.0	17614
	46.5	17616
	48.0	17617
	49.5	17618
	51.0	17620
	52.5	17621
	54.0	17622
	55.5	17623
	57.0	17624
	58.5	17625
6	60.0	17626

Shut-in# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	96.0	44	17671	1.7448	
	100.0	46	17672	1.7150	
	104.0	47	17673	1.6875	
	108.0	48	17674	1.6620	
	112.0	49	17676	1.6384	
	116.0	51	17677	1.6164	*
	120.0	51	17678	1.5958	*
	124.0	53	17679	1.5766	*
	128.0	54	17680	1.5586	*
	132.0	55	17681	1.5417	*
	136.0	56	17682	1.5257	*
	140.0	57	17683	1.5107	*
	144.0	58	17684	1.4965	*
	148.0	59	17685	1.4831	*
	152.0	60	17686	1.4704	*
	156.0	61	17687	1.4583	*
	160.0	62	17688	1.4469	*
	164.0	63	17689	1.4360	*
	168.0	64	17690	1.4256	*
	172.0	65	17691	1.4157	*
	176.0	66	17692	1.4063	*
	180.0	66	17693	1.3972	*
	184.0	67	17694	1.3886	*
	188.0	68	17694	1.3803	*
7	190.0	69	17695	1.3763	*

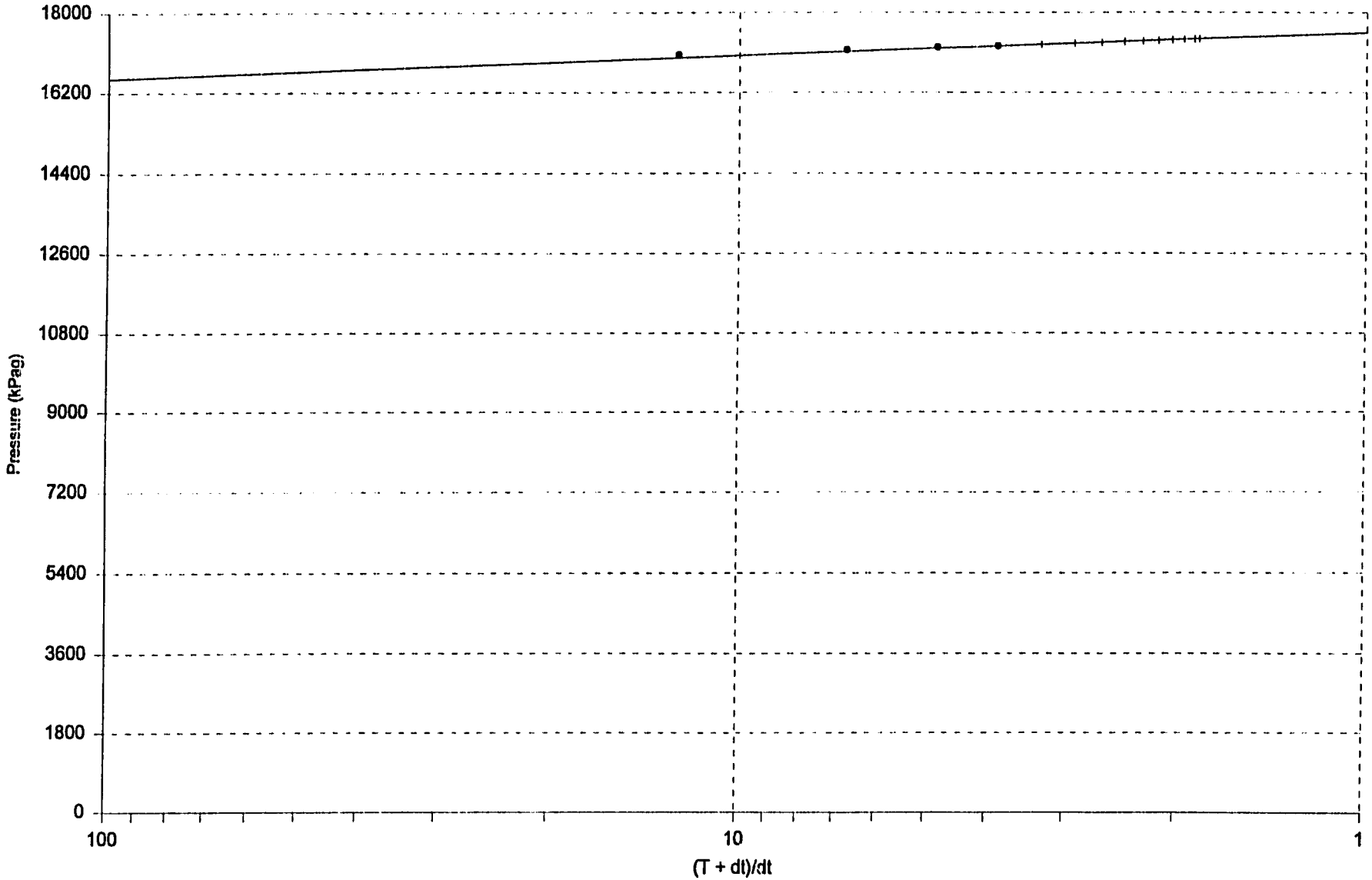
Horner Extrapolation:

Shut-in#	Extrapolated Pressure (kPag)	Extrapolated Slope ((kPag/cycle)
1	17535.8	515.88162
2	17730.5	261.79565

Note: Increment listing is filtered to include critical data only. Complete time/pressure data is available in electronic or printed format.

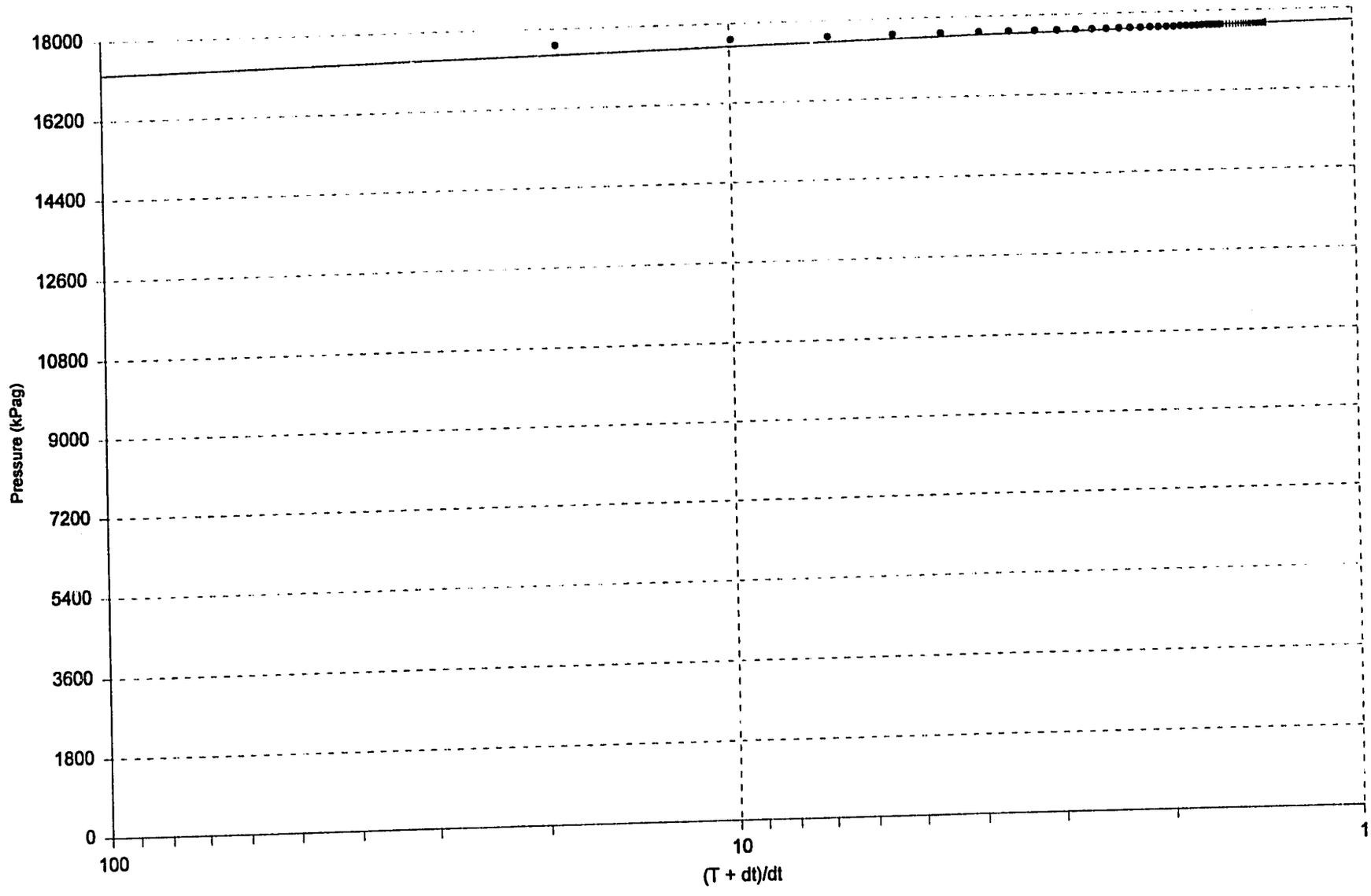
PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 1
Recorder: N60

Shut-in #1
Slope = 515.88 kPag/cycle
Extrapolated Pressure = 17535.83 kPag



PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 1
Recorder: N60

Shut-in #2
Slope = 261.80 kPag/cycle
Extrapolated Pressure = 17730.52 kPag

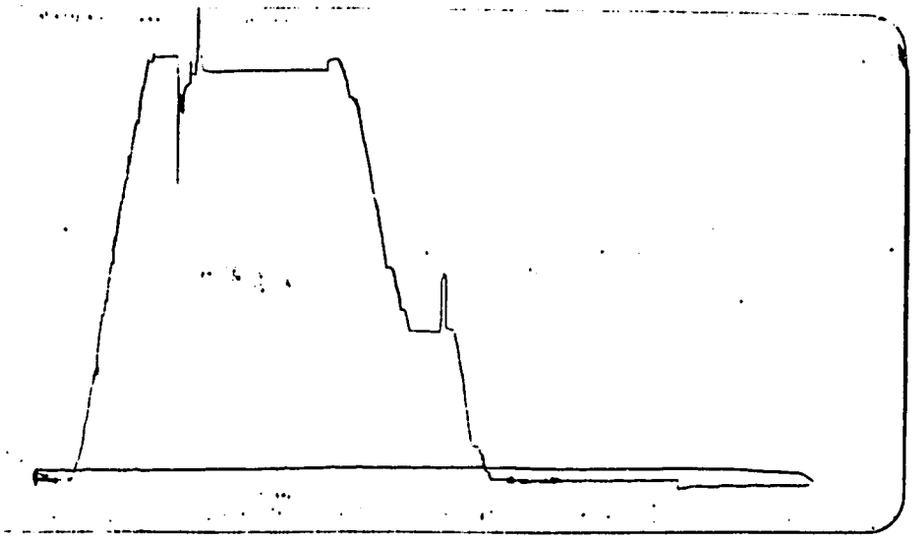


PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 1

Recorder# 9986

Depth: 1,908.00 m
Location: Outside

Recorder Type: K-3
Capacity: 20,300 kPag

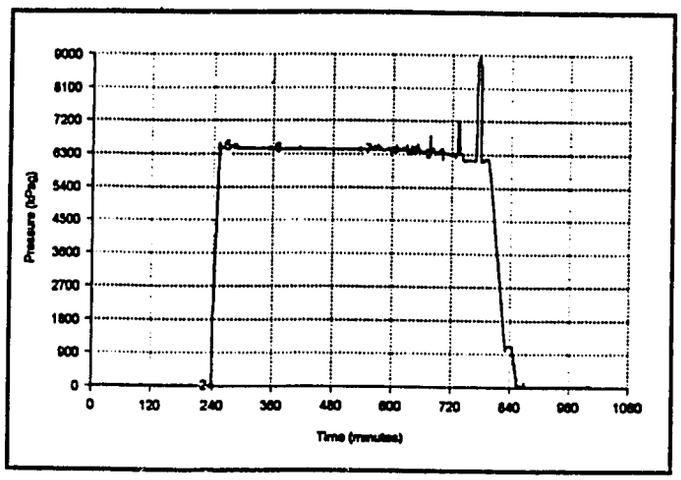


		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	18341	
2	Start of 1st Flow	12837	
3	End of 1st Flow	15972	11.5
4	End of 1st Shut-in	17273	13.5
5	Start of 2nd Flow	17662	
6	End of 2nd Flow	17710	60.0
7	End of 2nd Shut-in	17710	190.0
14	Final Hydrostatic	18341	

Recorder# K71

Depth: 1,890.00 m
Temperature: 65.3 C
Location: Inside

Recorder Type: ZI
Capacity: 68,900 kPag
Comments: Recovery recorder



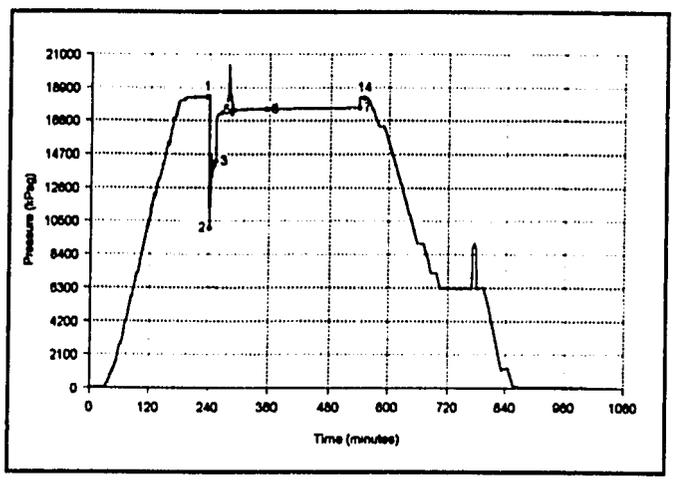
		Pressure (kPag)	Time (min)
2	Start of 1st Flow	0	
3	End of 1st Flow	6445	11.5
5	Start of 2nd Flow	6485	
6	End of 2nd Flow	6430	60.0
7	End of 2nd Shut-in	6407	190.0

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 1

Recorder# N19

Depth: 1,893.00 m
Temperature: 64.6 C
Location: Inside

Recorder Type: ZI
Capacity: 34,500 kPag
Comments: Above interval

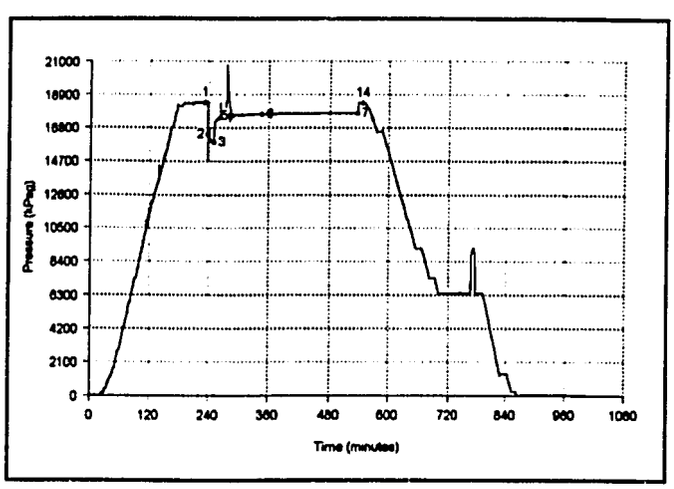


		Pressure (kPag)	*Time (min)*
1	Initial Hydrostatic	18276	
2	Start of 1st Flow	10030	
3	End of 1st Flow	14235	11.5
4	End of 1st Shut-in	17290	13.5
5	Start of 2nd Flow	17438	
6	End of 2nd Flow	17512	60.0
7	End of 2nd Shut-in	17586	190.0
14	Final Hydrostatic	18215	

Recorder# N60

Depth: 1,908.00 m
Temperature: 64.4 C
Location: Outside

Recorder Type: ZI
Capacity: 34,500 kPag



		Pressure (kPag)	*Time (min)*
1	Initial Hydrostatic	18378	
2	Start of 1st Flow	16366	
3	End of 1st Flow	15864	11.5
4	End of 1st Shut-in	17399	13.5
5	Start of 2nd Flow	17548	
6	End of 2nd Flow	17626	60.0
7	End of 2nd Shut-in	17695	190.0
14	Final Hydrostatic	18326	

N.E.B. COPY

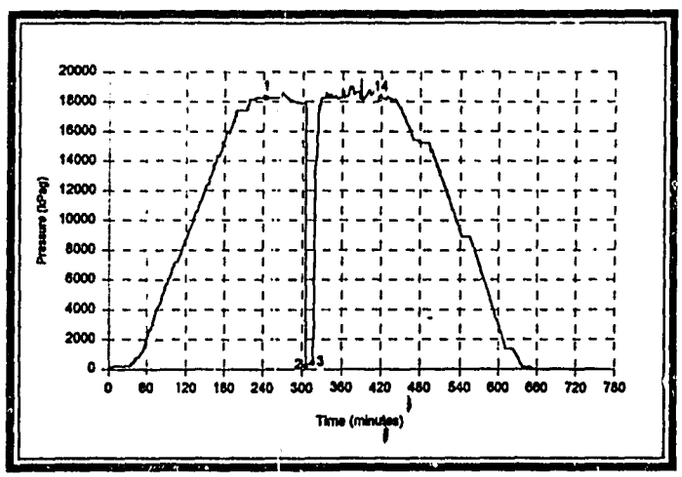
BAKER HUGHES

Baker Oil Tools

Paramount etal Liard A-01
60.100/123.150
DST# 2

Formation: Tight Hole
Interval - from: 1865.00 **to:** 1892.00 m

Recorder# W35 at 1868.00 m



Maximum Btm Hole Temperature @ FSI: 60.2 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	18228		
2	Start of 1st Flow	241		
3	End of 1st Flow	418	11.0	
14	Final Hydrostatic	18212		

Liquid Recovery of 15.00 m

Recovery	*Description*	*Salinity*
15.00 m	Invert	

Test Date: 1999-03-12
Test Type: Inflate Straddle
Tester Name: Ken Willis
Drill Pipe O.D.: 114.00 mm
Drill Collar I.D.: 31.00 mm
Drill Collar Length: 96.81 m
Hole Size: 222.00 mm

Blow Description:

Weak air blow (13 mm) steady throughout. No gas to surface.

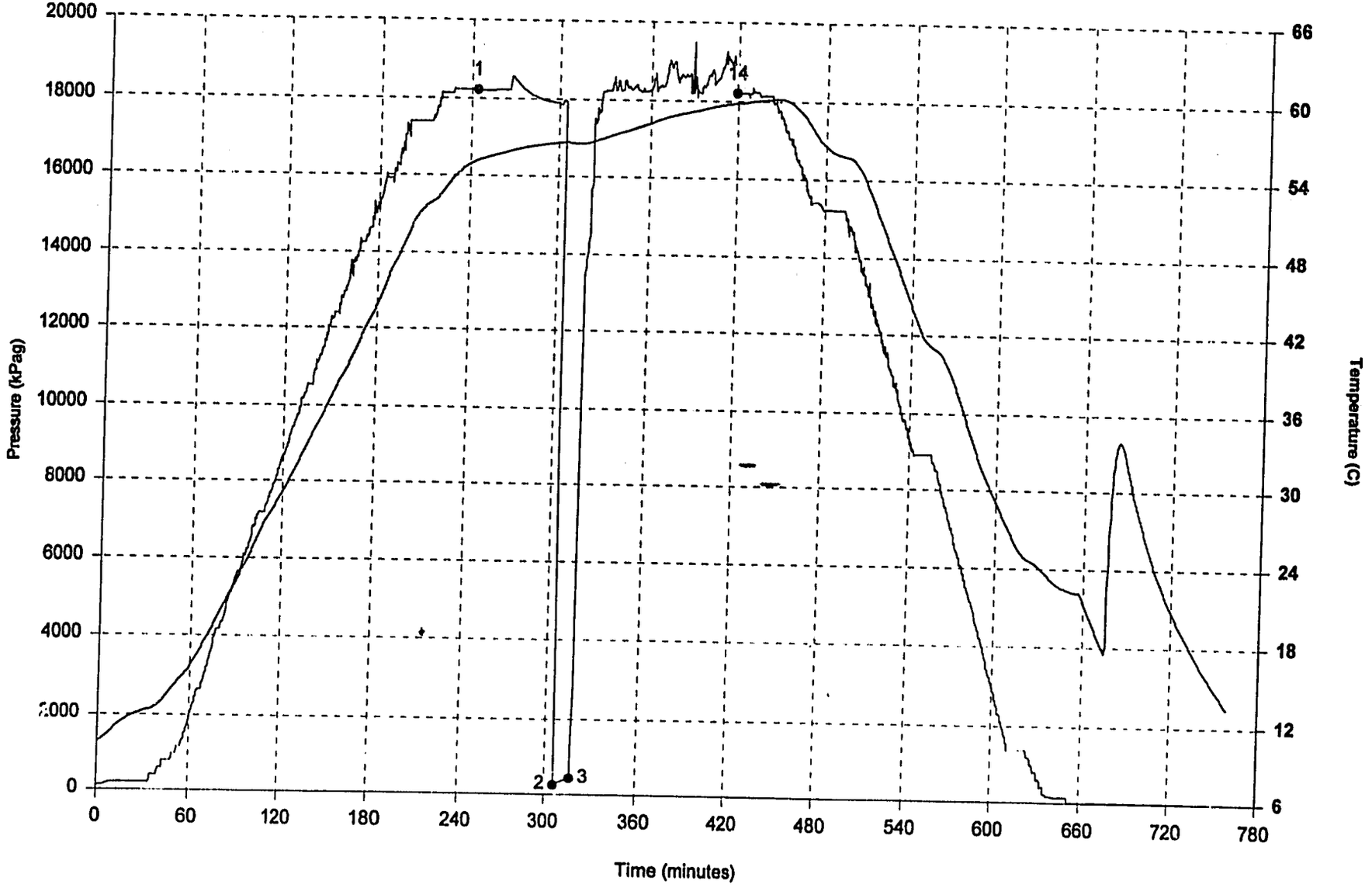
Remarks:

Misrun - lost the packer seat when closing the tool for the initial shut-in. Repumped the packer with no success. Moved up 1 meter and tried to pump up again with no success. Pulled out of the hole - top packer punctured in several places through the outer cover. One bottom hole sampler was dumped on location. A mud tank sample was taken.

BAKER OIL TOOLS DRILL STEM TESTING

Paramount etal Liard A-01
60.100/123.150
DST #: 2
Recorder: W35

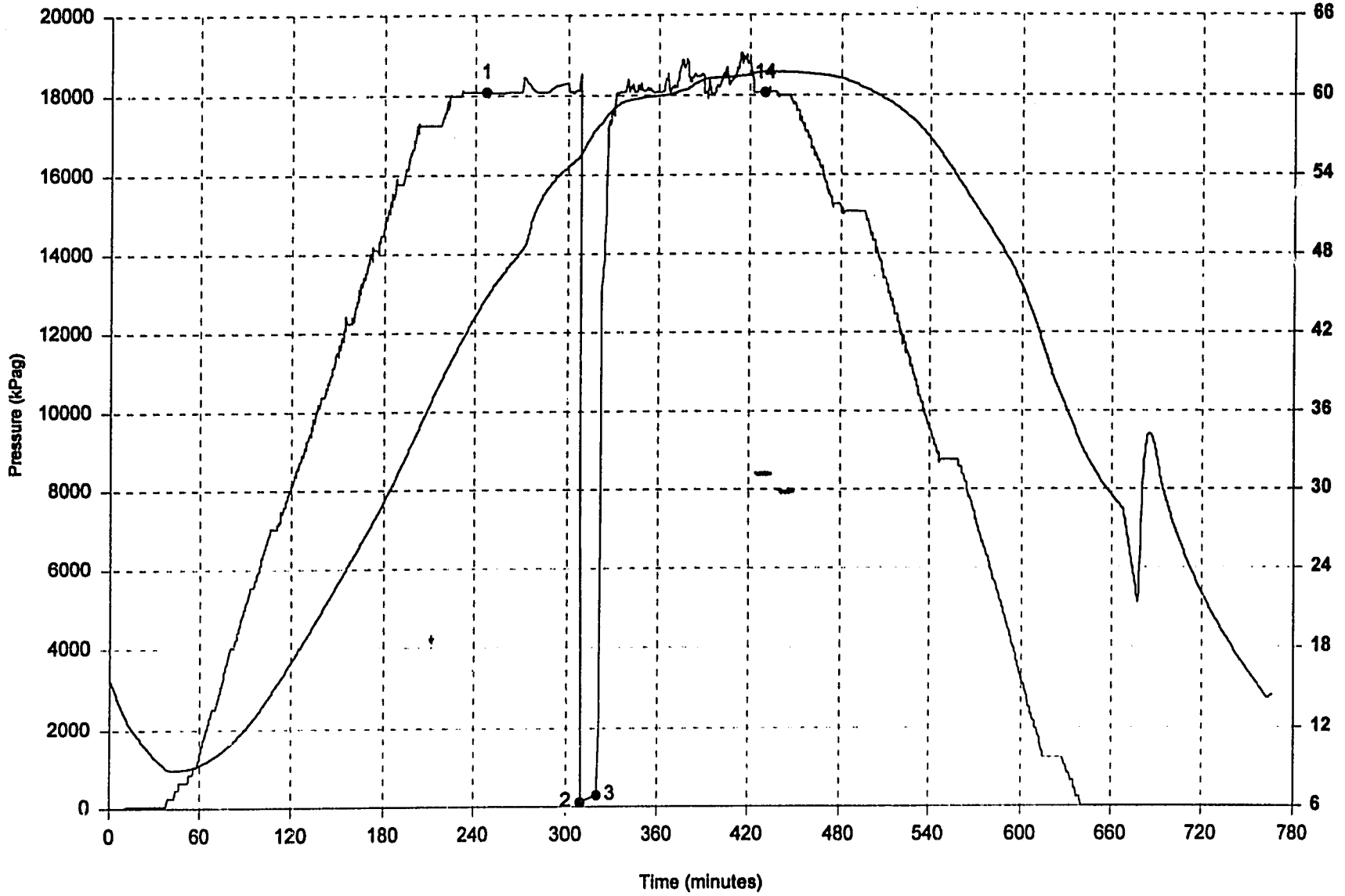
Pressure (kPag) at Critical Points:
1: 18228 14: 18212
2: 241
3: 418



Paramount etal Liard A-01
60.100/123.150
DST #: 2
Recorder: K79

Pressure (kPag) at Critical Points:
1: 18082 14: 18062
2: 98
3: 273

Above Interval

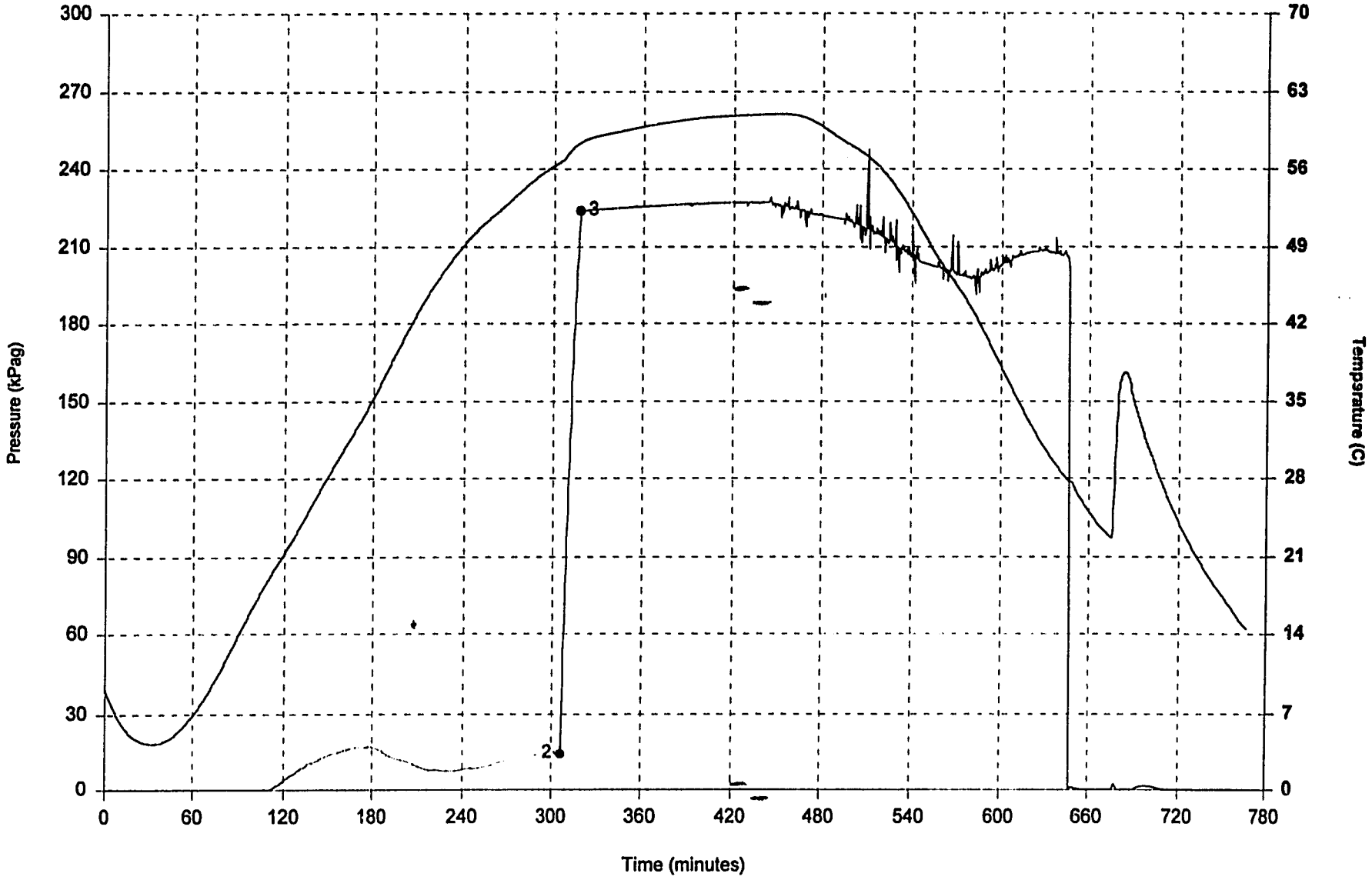


BAKER OIL TOOLS DRILL STEM TESTING

Paramount etal Liard A-01
60.100/123.150
DST #: 2
Recorder: K78

Pressure (kPag) at Critical Points:
2: 14
3: 224

Recovery recorder



N.E.B. COPY

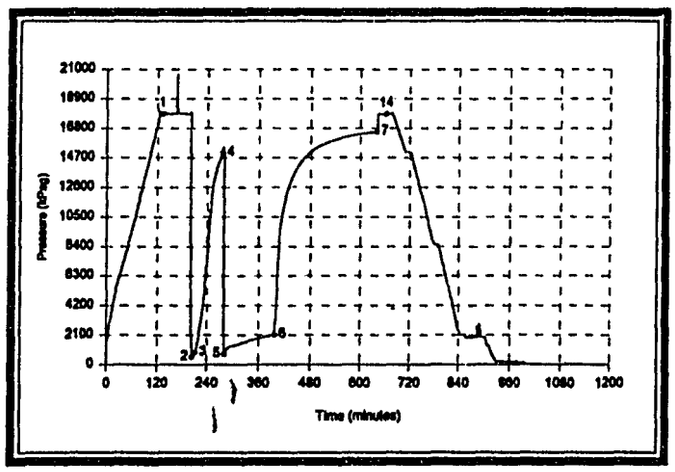
BAKER HUGHES

Baker Oil Tools

Paramount etal Liard A-01
60.100/123.150
DST# 3

Formation: Tight Hole
Interval - from: 1819.00 **to:** 1848.00 m

Recorder# W35 at 1822.00 m



Maximum Btm Hole Temperature @ FSI: 61.9 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	17798		
2	Start of 1st Flow	534		
3	End of 1st Flow	855	8.5	
4	End of 1st Shut-in	15044	61.0	
5	Start of 2nd Flow	740		
6	End of 2nd Flow	2128	118.5	
7	End of 2nd Shut-in	16525	243.5	
14	Final Hydrostatic	17797		

Liquid Recovery of 200.00 m

Test was reversed out.

Recovery	*Description*	*Salinity*
100.00 m	Gassy invert	
100.00 m	Gassy water cut invert	34000

Test Date: 1999-03-12
Test Type: Inflate Straddle
Tester Name: Ken Willis
Drill Pipe O.D.: 114.00 mm
Drill Collar I.D.: 31.00 mm
Drill Collar Length: 96.81 m
Hole Size: 222.00 mm

Blow Description:

Weak air blow increasing to strong in 30 seconds. Gas to surface in 6.5 minutes with a lazy 3 meter flame.

Weak air blow increasing to strong in 10 sec. GTS immediatly. lazy 1.5m flame.

Remarks:

Mechanically successful test. Results suggest low permeability within the interval tested. The shut-ins were not extrapolated due to insufficient curve development. The gas was too small to measure after 100 minutes.

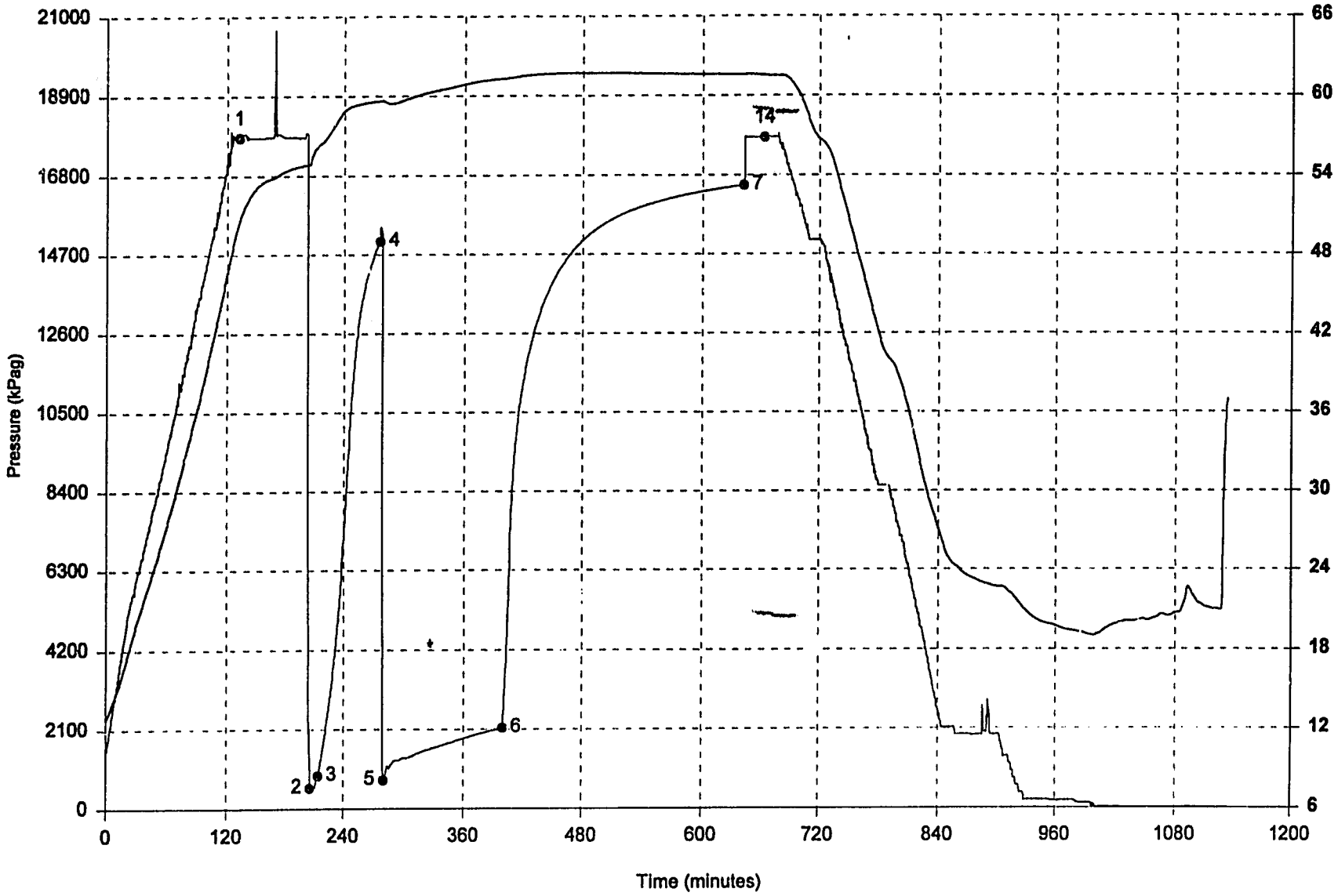
Gas Measured with FLOOR MANIFOLD

Flow#	*Time (min)*	*Surface Choke (mm)*	*Surface Pressure (kPag)*	*Gas Rate (m3/day)*
2	25	3.17	50	200
2	35	3.17	60	214
2	45	3.17	60	214
2	55	3.17	60	214
2	65	3.17	60	214
2	75	3.17	60	214
2	85	3.17	60	214
2	95	3.17	50	200
2	100	3.17	50	200

Paramount etal Liard A-01
80.100/123.150
DST #: 3
Recorder: W35

Pressure (kPag) at Critical Points:

1:	17798	4:	15044	7:	16525
2:	534	5:	740	14:	17797
3:	855	6:	2128		

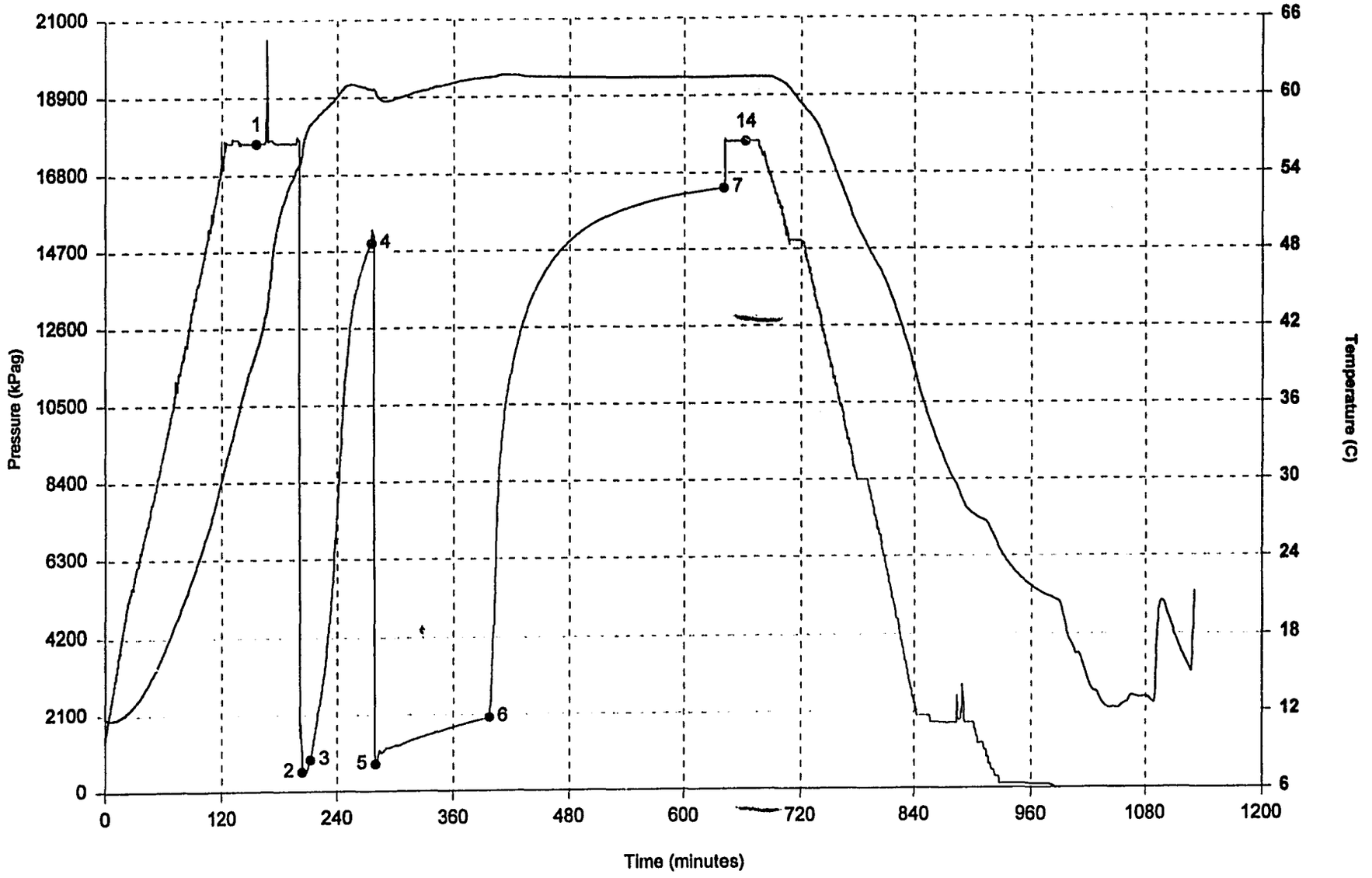


Paramount etal Liard A-01
60.100/123.150
DST #: 3
Recorder: K79

Pressure (kPag) at Critical Points:

1:	17654	4:	14912	7:	16377
2:	521	5:	725	14:	17648
3:	849	6:	2005		

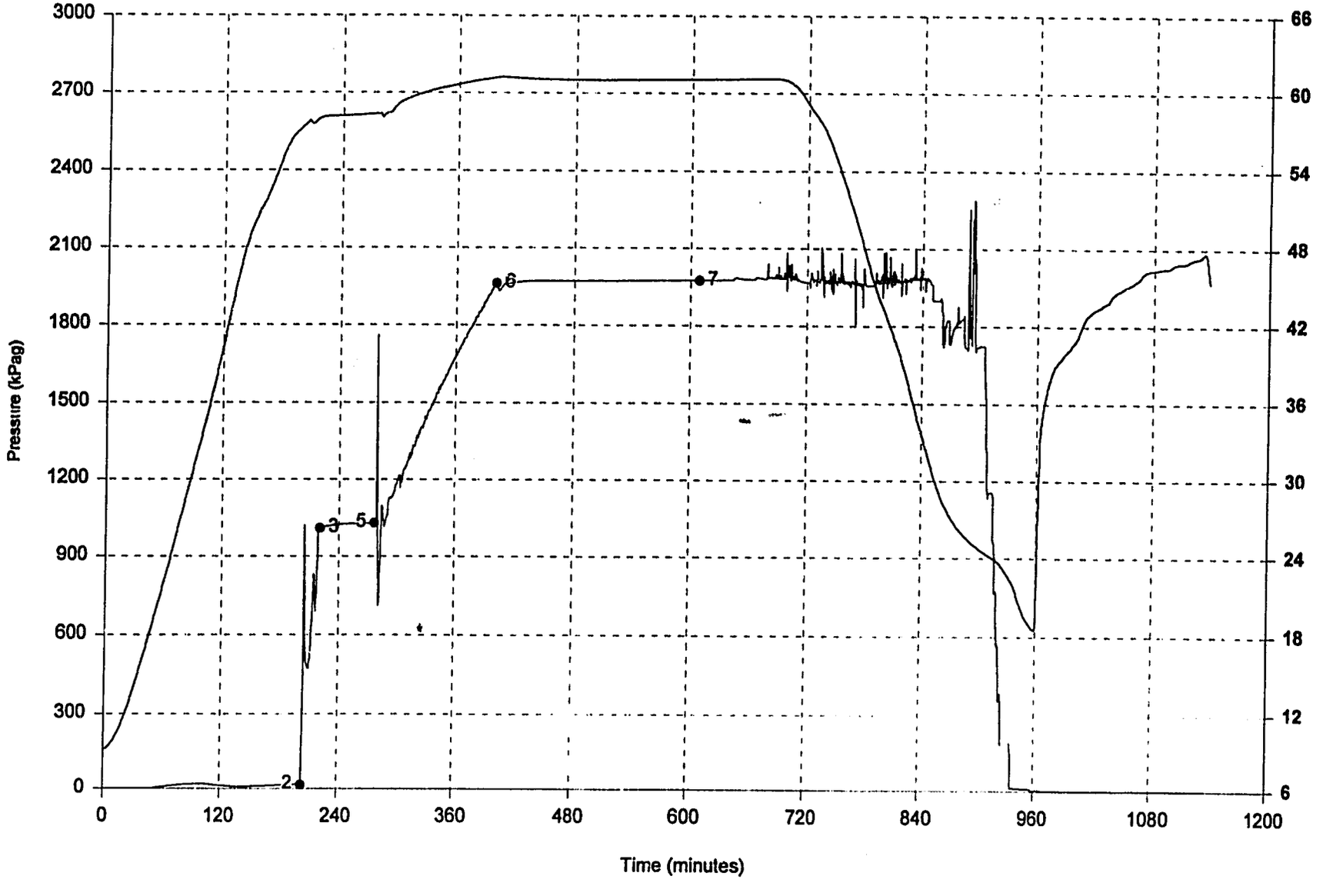
Above Interval



Paramount etal Liard A-01
60.100/123.150
DST #: 3
Recorder: K78

Pressure (kPag) at Critical Points:
2: 15 6: 1960
3: 1009 7: 1973
5: 1030

Recovery recorder



Paramount etal Liard A-01
60.100/123.150
DST# 3
Recorder W35

Build-up and Flow Curve Increments

Flow# 1

Chart Label	Time (min)	Pressure (kPag)
2	0.0	534
	1.0	503
	2.0	491
	3.0	502
	4.0	533
	5.0	610
	6.0	704
	7.0	819
	8.0	821
3	8.5	855

Shutin# 1

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Pressure² (kPag²/10^6)	Used for Extrap
	0.0		855		0.7318	
	2.0	358	1213	5.2500	1.4723	
	4.0	706	1561	3.1250	2.4378	
	6.0	1046	1901	2.4167	3.6137	
	8.0	1393	2249	2.0625	5.0562	
	10.0	1761	2616	1.8500	6.8446	
	12.0	2157	3012	1.7083	9.0740	
	14.0	2590	3445	1.6071	11.8715	
	16.0	3078	3933	1.5312	15.4721	
	18.0	3640	4495	1.4722	20.2058	
	20.0	4285	5141	1.4250	26.4266	
	22.0	5022	5877	1.3864	34.5438	
	24.0	5854	6709	1.3542	45.0116	
	26.0	6775	7631	1.3269	58.2284	
	28.0	7731	8587	1.3036	73.7293	
	30.0	8672	9528	1.2833	90.7752	
	32.0	9567	10422	1.2656	108.6285	
	34.0	10355	11210	1.2500	125.6672	
	36.0	11025	11880	1.2361	141.1390	
	38.0	11572	12428	1.2237	154.4438	
	40.0	12017	12872	1.2125	165.6928	
	42.0	12381	13237	1.2024	175.2058	
	44.0	12687	13543	1.1932	183.4027	
	46.0	12946	13802	1.1848	190.4931	
	48.0	13174	14029	1.1771	196.8131	
	50.0	13374	14230	1.1700	202.4898	
	52.0	13558	14414	1.1635	207.7570	
	54.0	13724	14579	1.1574	212.5533	
	56.0	13873	14728	1.1518	216.9215	
	58.0	14008	14863	1.1466	220.9229	
	60.0	14132	14987	1.1417	224.6151	
4	61.0	14189	15044	1.1393	226.3366	

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

Paramount etal Liard A-01
60.100/123.150
DST# 3
Recorder W35

Build-up and Flow Curve Increments

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
5	0.0	740
	2.5	972
	5.0	1065
	7.5	1151
	10.0	1225
	12.5	1254
	15.0	1258
	17.5	1296
	20.0	1323
	22.5	1320
	25.0	1329
	27.5	1347
	30.0	1401
	32.5	1422
	35.0	1454
	37.5	1474
	40.0	1503
	42.5	1532
	45.0	1557
	47.5	1566
	50.0	1600
	52.5	1611
	55.0	1637
	57.5	1657
	60.0	1684
	62.5	1695
	65.0	1723
	67.5	1742
	70.0	1762
	72.5	1786
	75.0	1817
	77.5	1828
	80.0	1849
	82.5	1870
	85.0	1886
	87.5	1908
	90.0	1927
	92.5	1944

Shutin# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Pressure² (kPag²/10^6)	Used for Extrap
	0.0		2128		4.5285	
	5.0	3381	5509	26.4000	30.3491	
	10.0	6771	8899	13.7000	79.1840	
	15.0	8236	10364	9.4667	107.4167	
	20.0	9118	11246	7.3500	126.4804	
	25.0	9791	11919	6.0800	142.0617	
	30.0	10343	12471	5.2333	155.5371	
	35.0	10801	12929	4.6286	167.1579	
	40.0	11184	13312	4.1750	177.2139	
	45.0	11518	13646	3.8222	186.2124	
	50.0	11801	13930	3.5400	194.0314	
	55.0	12048	14176	3.3091	200.9712	
	60.0	12263	14391	3.1167	207.1053	
	65.0	12454	14582	2.9538	212.6232	
	70.0	12622	14750	2.8143	217.5720	
	75.0	12772	14900	2.6933	222.0199	
	80.0	12906	15034	2.5875	226.0209	
	85.0	13027	15155	2.4941	229.6834	
	90.0	13137	15265	2.4111	233.0085	
	95.0	13236	15364	2.3368	236.0412	
	100.0	13326	15454	2.2700	238.8268	
	105.0	13408	15536	2.2095	241.3793	
	110.0	13484	15612	2.1545	243.7452	
	115.0	13554	15682	2.1043	245.9139	
	120.0	13617	15746	2.0583	247.9208	
	125.0	13677	15805	2.0160	249.8096	
	130.0	13732	15860	1.9769	251.5491	
	135.0	13784	15912	1.9407	253.1795	
	140.0	13831	15959	1.9071	254.7000	
	145.0	13876	16004	1.8759	256.1324	
	150.0	13918	16046	1.8467	257.4809	
	155.0	13958	16086	1.8194	258.7518	
	160.0	13995	16123	1.7937	259.9486	
	165.0	14030	16158	1.7697	261.0730	
	170.0	14062	16190	1.7471	262.1201	
	175.0	14094	16222	1.7257	263.1623	
	180.0	14124	16252	1.7056	264.1229	
	185.0	14152	16280	1.6865	265.0365	

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

Paramount etal Liard A-01
60.100/123.150
DST# 3
Recorder W35

Build-up and Flow Curve Increments

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
	95.0	1965
	97.5	1980
	100.0	1993
	102.5	2019
	105.0	2032
	107.5	2055
	110.0	2066
	112.5	2091
	115.0	2104
	117.5	2118
6	118.5	2128

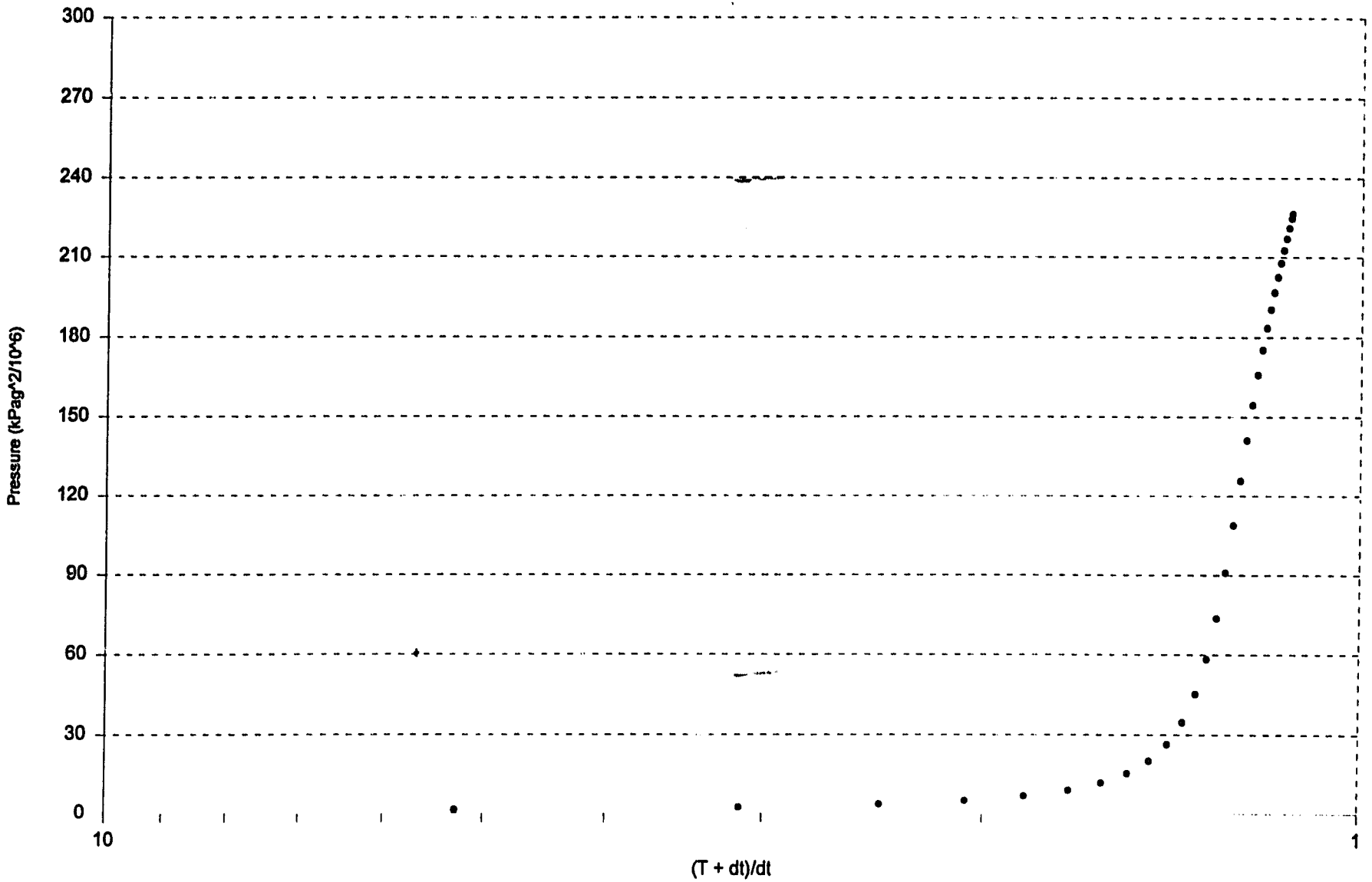
Shutin# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Pressure² (kPag²/10^6)	Used for Extrap
	190.0	14179	16307	1.6684	265.9068	
	195.0	14204	16332	1.6513	266.7372	
	200.0	14228	16356	1.6350	267.5169	
	205.0	14251	16379	1.6195	268.2852	
	210.0	14273	16401	1.6048	268.9948	
	215.0	14294	16422	1.5907	269.6759	
	220.0	14314	16442	1.5773	270.3265	
	225.0	14333	16461	1.5644	270.9600	
	230.0	14351	16479	1.5522	271.5650	
	235.0	14369	16497	1.5404	272.1382	
	240.0	14386	16514	1.5292	272.6971	
7	243.5	14397	16525	1.5216	273.0659	

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

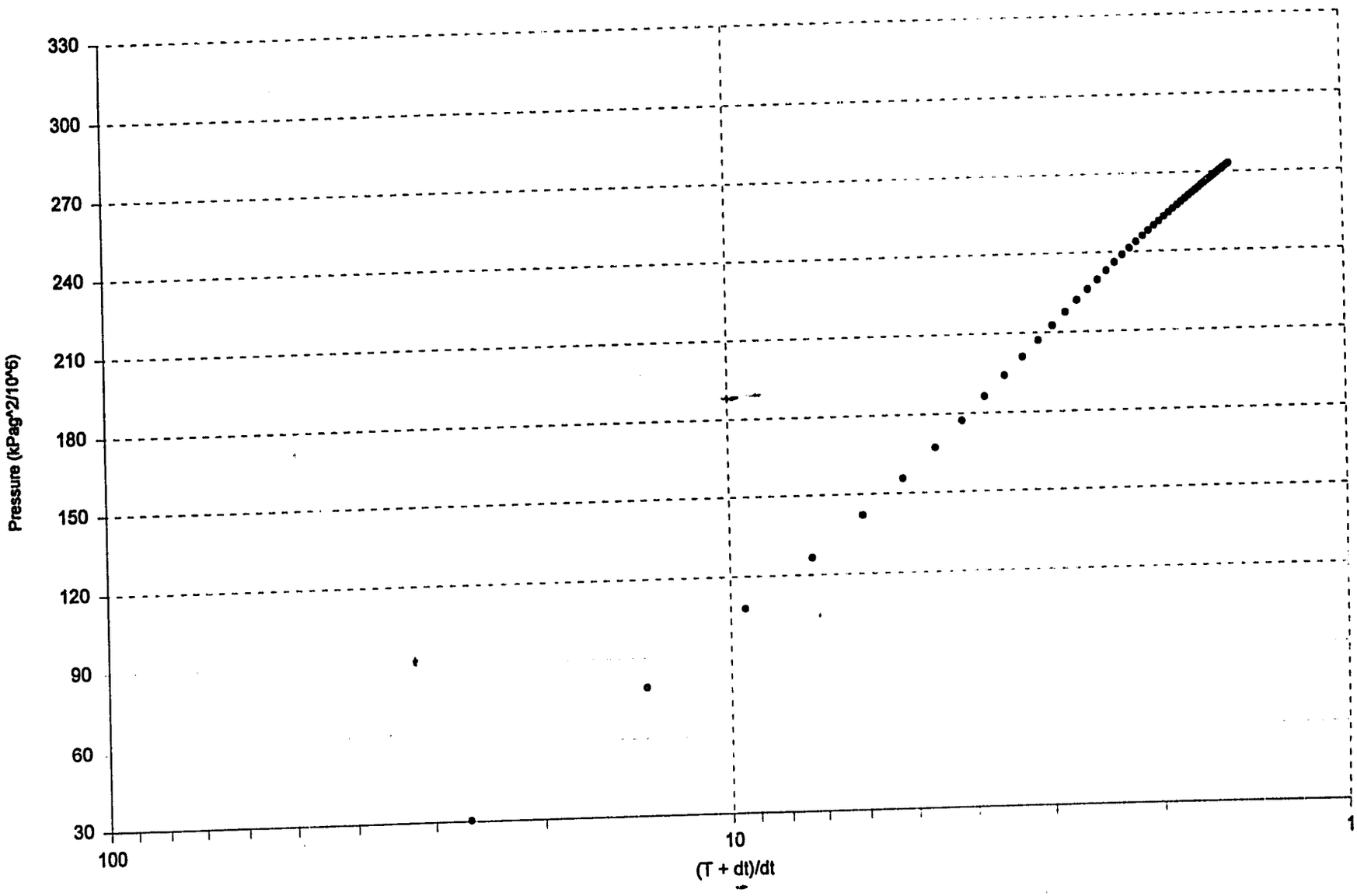
Paramount etal Liard A-01
60.100/123.150
DST #: 3
Recorder: W35

Shut-in #1



Paramount etal Liard A-01
60.100/123.150
DST #: 3
Recorder: W35

Shut-In #2



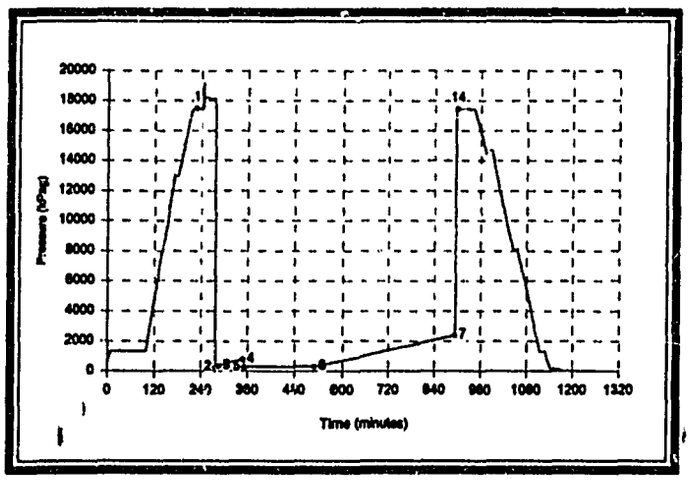
N.E.B. COPY

Paramount etal Liard A-01
60.100/123.150
DST# 4

Baker Oil Tools

Formation: Tight Hole
Interval - from: 1781.00 **to:** 1804.40 m

Recorder# W35 at 1784.00 m



Maximum Btm Hole Temperature @ FSI: 61.7 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	17495		
2	Start of 1st Flow	253		
3	End of 1st Flow	338	8.5	
4	End of 1st Shut-in	763	61.5	
5	Start of 2nd Flow	239		
6	End of 2nd Flow	297	180.0	
7	End of 2nd Shut-in	2391	362.5	
14	Final Hydrostatic	17449		

Liquid Recovery of 10.00 m

Test was reversed out.

Recovery	*Description*	*Salinity*
10.00 m	Gassy invert	

Test Date: 1999-03-13
Test Type: Inflate Straddle
Tester Name: Ken Willis
Drill Pipe O.D.: 114.00 mm
Drill Collar I.D.: 31.00 mm
Drill Collar Length: 96.81 m
Hole Size: 222.00 mm

Blow Description:

Weak air blow increasing to fair in 10 minutes then steady throughout. No gas to surface.

Strong initial surge. Vented, took 2.5 hours to reach bottom of pail. NGTS.

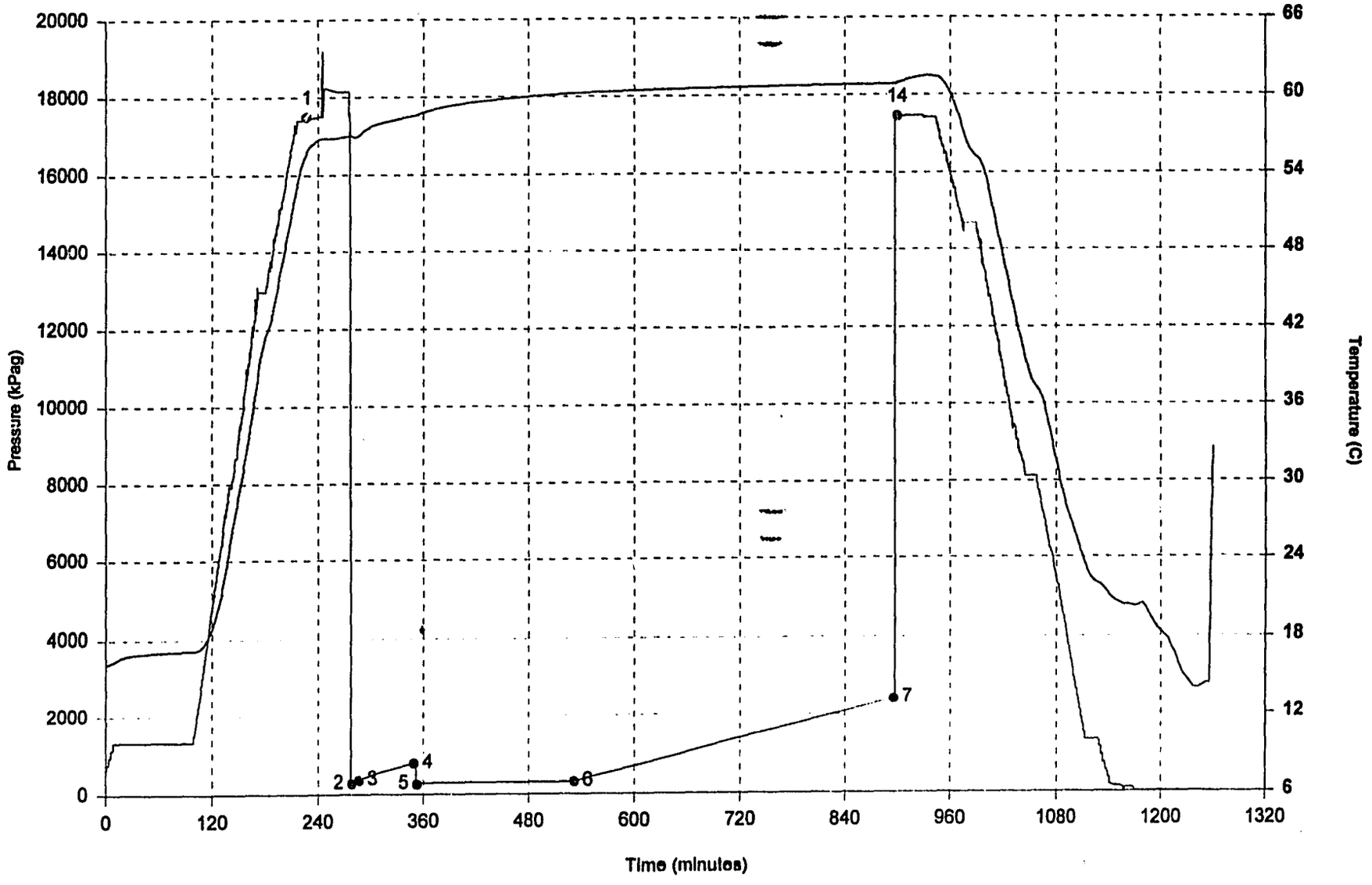
Remarks:

Mechanically successful test. Results suggest virtually no permeability within the interval tested.

Paramount etal Liard A-01
60.100/123.150
DST #: 4
Recorder: W35

Pressure (kPag) at Critical Points:

1:	17495	4:	763	7:	2391
2:	253	5:	239	14:	17449
3:	338	6:	297		

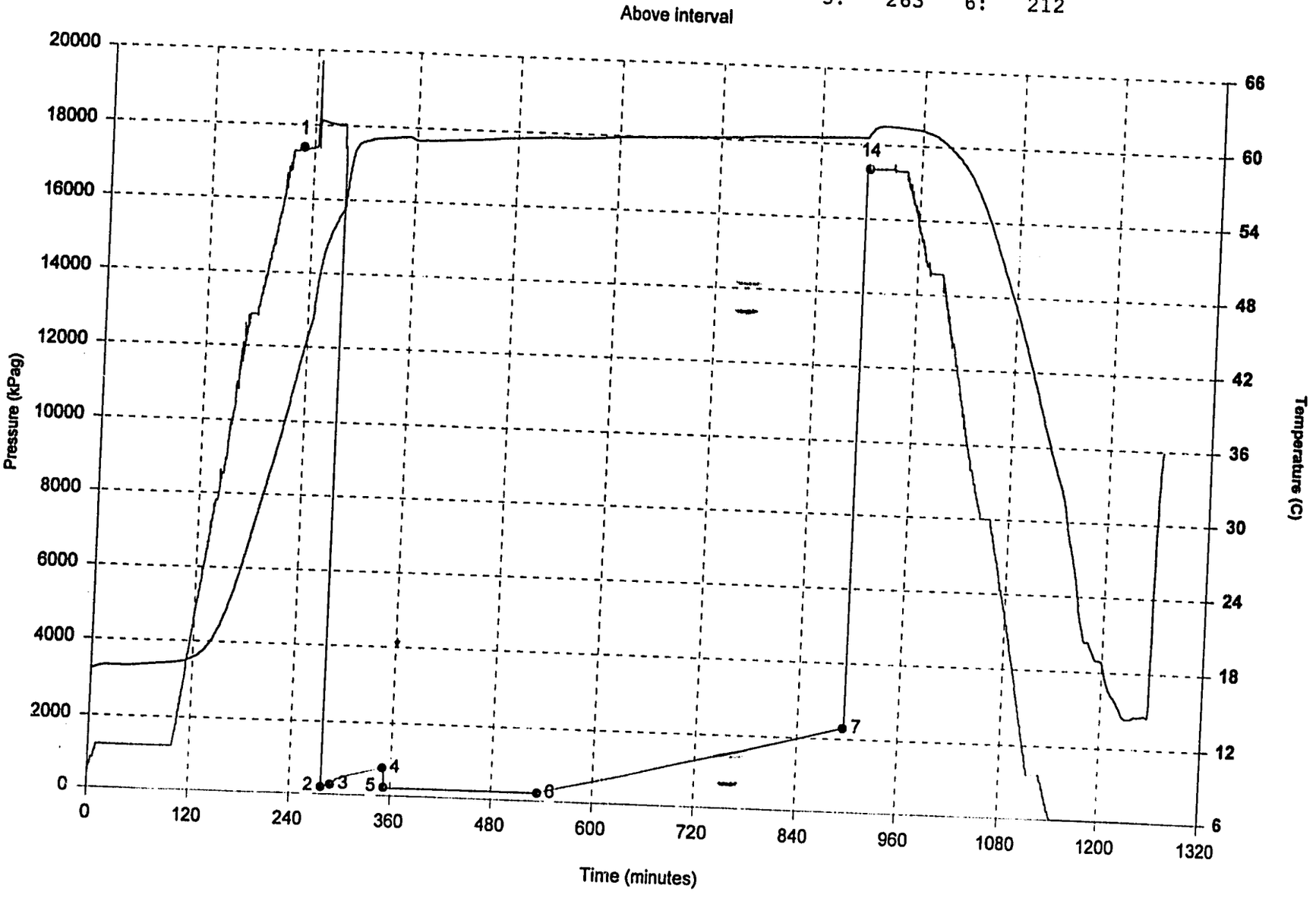


BAKER OIL TOOLS DRILL STEM TESTING

Paramount etal Liard A-01
60.100/123.150
DST #: 4
Recorder: K79

Pressure (kPag) at Critical Points:

1:	17393	4:	755	7:	2290
2:	194	5:	223	14:	17345
3:	263	6:	212		

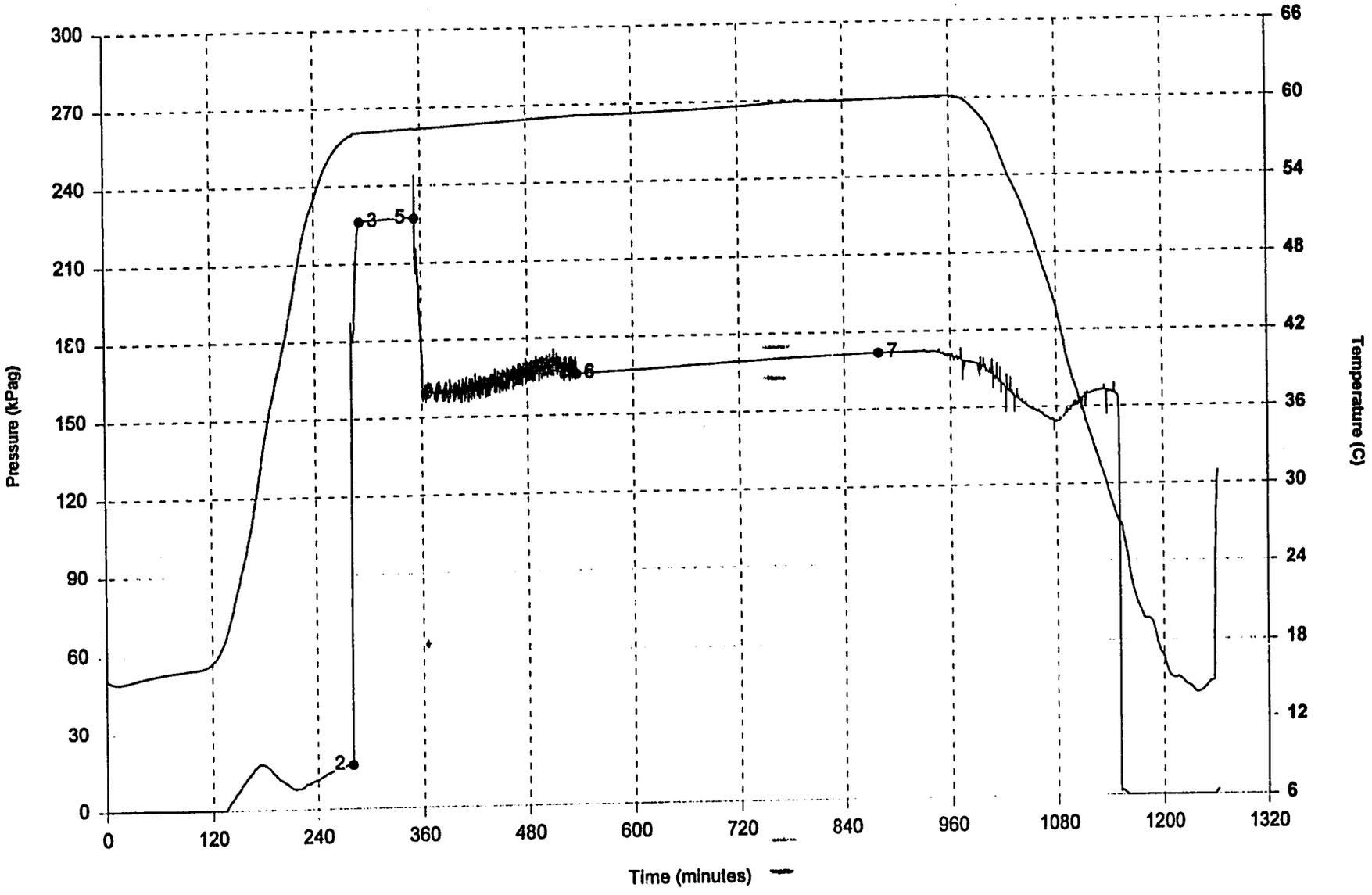


BAKER OIL TOOLS DRILL STEM TESTING

Paramount etal Liard A-01
60.100/123.150
DST #: 4
Recorder: K78

Pressure (kPag) at Critical Points:
2: 16 6: 166
3: 226 7: 172
5: 227

Recovery recorder



N.E.B. COPY

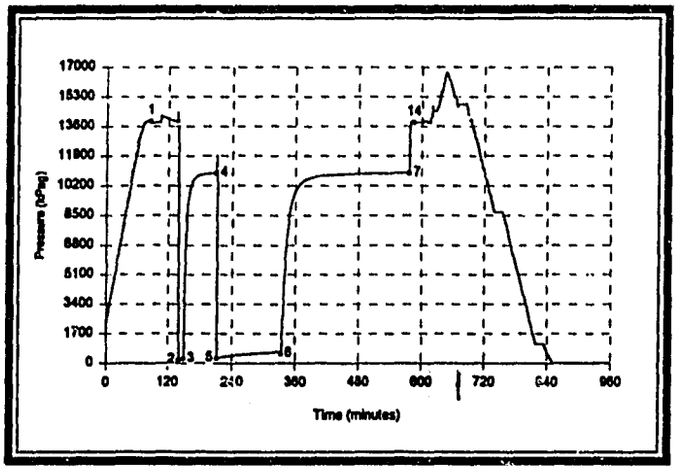
BAKER HUGHES

Baker Oil Tools

Paramount etal Liard A-01
60.100/123.150
DST# 5

Formation: Tight Hole
Interval - from: 1405.00 **to:** 1429.00 m

Recorder# W35 at 1408.00 m



Maximum Btm Hole Temperature @ FSI: 49.6 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	13895		
2	Start of 1st Flow	166		
3	End of 1st Flow	258	10.0	
4	End of 1st Shut-in	10900	61.0	11036.9
5	Start of 2nd Flow	283		
6	End of 2nd Flow	537	120.5	
7	End of 2nd Shut-in	10903	242.5	10995.0
14	Final Hydrostatic	13813		

Liquid Recovery of 45.00 m

Recovery	*Description*	*Salinity*
45.00 m	Invert	

Test Date: 1999-03-14
Test Type: Inflate Straddle
Tester Name: Ken Willis
Drill Pipe O.D.: 114.00 mm
Drill Collar I.D.: 31.00 mm
Drill Collar Length: 96.81 m
Hole Size: 222.00 mm

Blow Description:

Very weak air blow (6 mm into pail) steady throughout. No gas to surface.

Very weak air blow (6 mm into pail) steady throughout. No gas to surface.

Remarks:

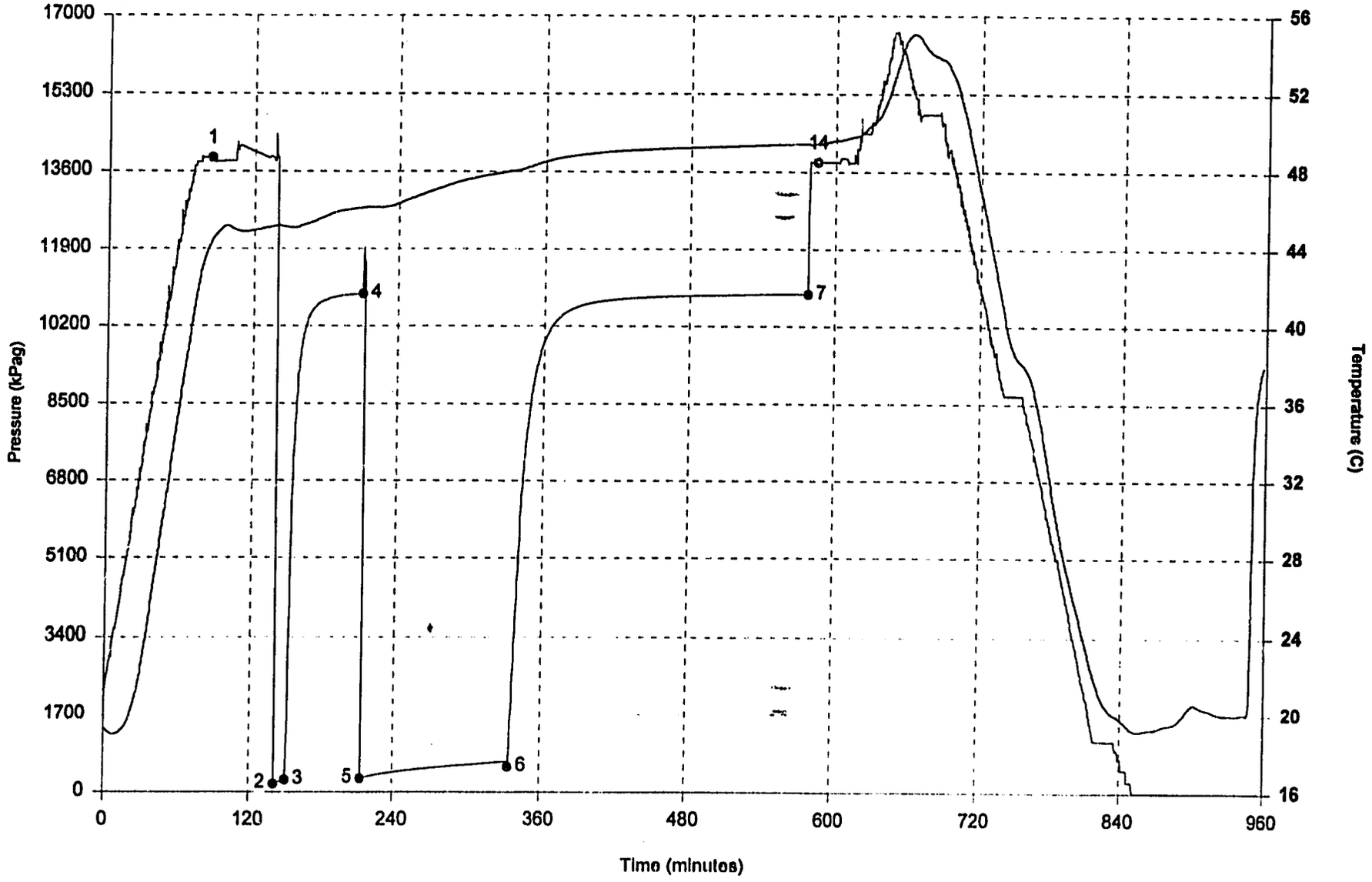
Mechanically successful test. Results suggest average permeability within the interval tested. The results also suggest formation damage.

BAKER OIL TOOLS DRILL STEM TESTING

Paramount etal Liard A-01
60.100/123.150
DST #: 5
Recorder: W35

Pressure (kPag) at Critical Points:

1:	13895	4:	10900	7:	10903
2:	166	5:	283	14:	13813
3:	258	6:	537		

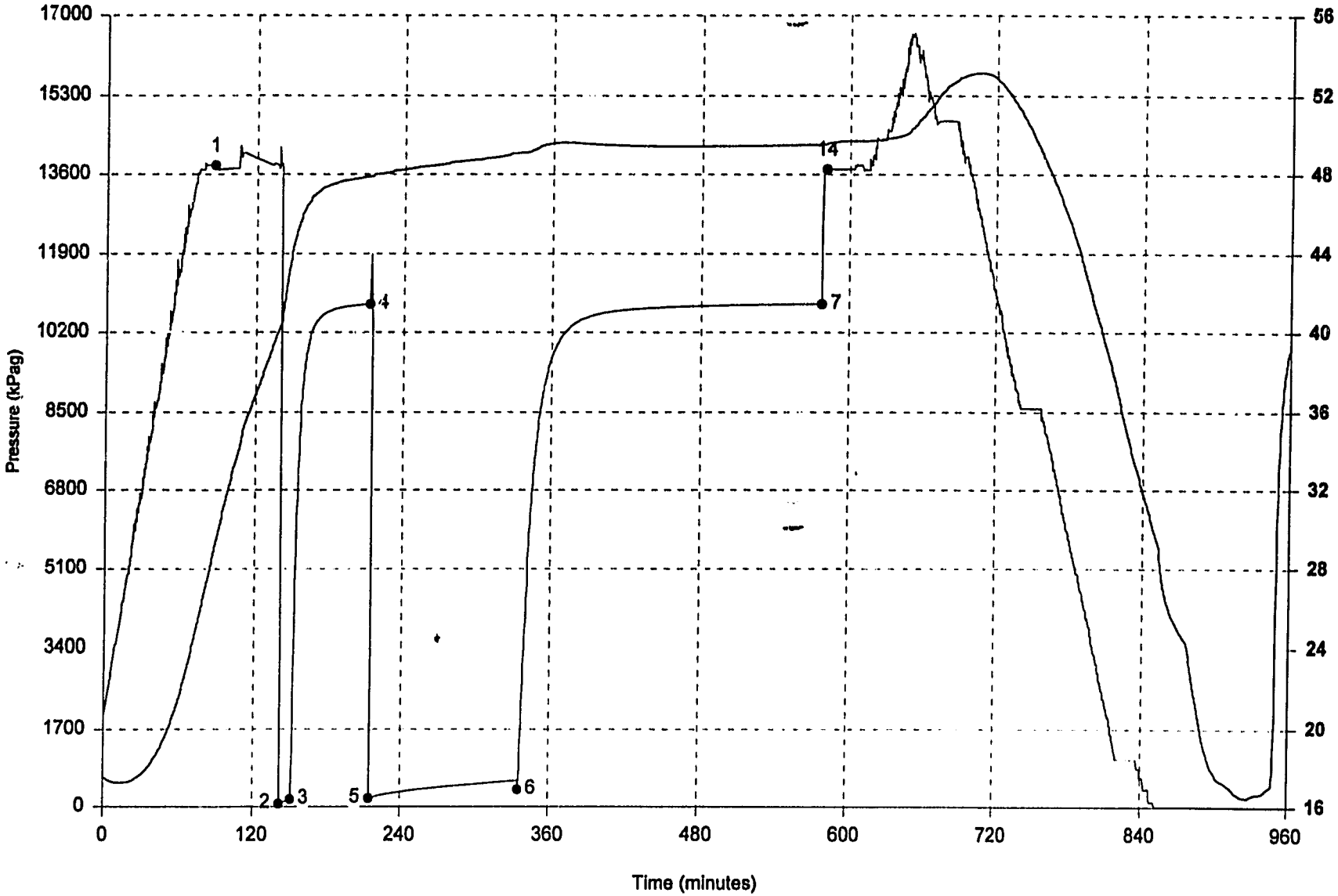


Paramount etal Liard A-01
60.100/123.150
DST #: 5
Recorder: K79

Pressure (kPag) at Critical Points:

1:	13792	4:	10795	7:	10802
2:	57	5:	175	14:	13711
3:	151	6:	360		

Above interval

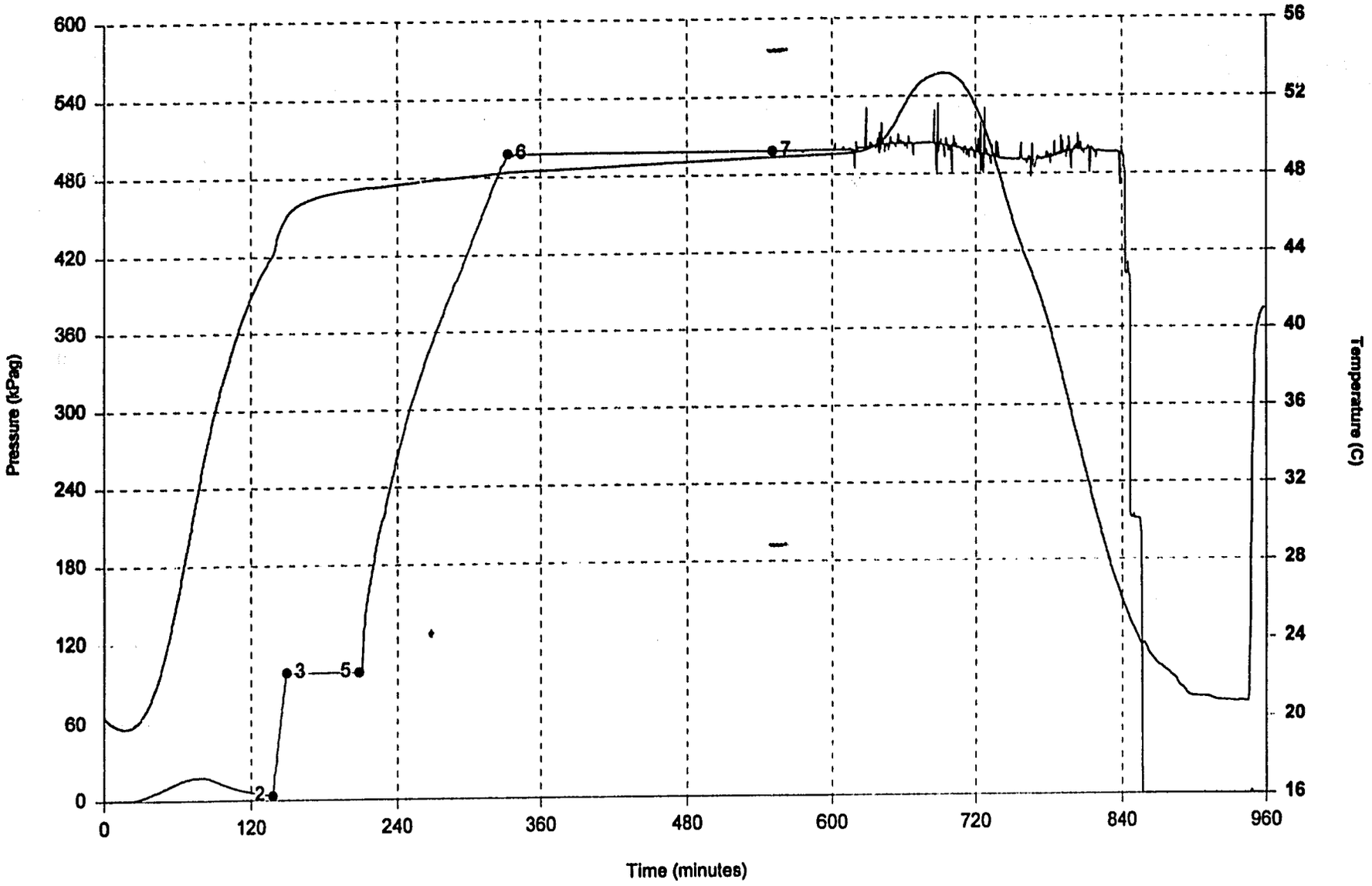


Paramount etal Liard A-01
60.100/123.150
DST #: 5
Recorder: K78

Pressure (kPag) at Critical Points:

2:	3	6:	498
3:	99	7:	498
5:	99		

Recovery recorder



Paramount etal Liard A-01
60.100/123.150
DST# 5
Recorder W35

Build-up and Flow Curve Increments

Flow# 1

Chart Label	Time (min)	Pressure (kPag)
2	0.0	166
	1.0	181
	2.0	188
	3.0	196
	4.0	205
	5.0	214
	6.0	223
	7.0	232
	8.0	241
	9.0	249
3	10.0	258

Shutin# 1

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Pressure² (kPag²/10^6)	Used for Extrap
	0.0		258		0.0663	
	2.0	3873	4131	6.0000	17.0611	
	4.0	6617	6875	3.5000	47.2644	
	6.0	8055	8312	2.6667	69.0942	
	8.0	8861	9119	2.2500	83.1509	
	10.0	9408	9665	2.0000	93.4198	
	12.0	9749	10007	1.8333	100.1348	
	14.0	9974	10232	1.7143	104.6940	
	16.0	10130	10388	1.6250	107.9008	
	18.0	10238	10496	1.5556	110.1597	
	20.0	10318	10576	1.5000	111.8443	
	22.0	10377	10634	1.4545	113.0842	
	24.0	10421	10679	1.4167	114.0411	
	26.0	10458	10716	1.3846	114.8284	
	28.0	10486	10744	1.3571	115.4273	
	30.0	10509	10767	1.3333	115.9250	
	32.0	10529	10787	1.3125	116.3553	
	34.0	10546	10803	1.2941	116.7103	*
	36.0	10559	10817	1.2778	116.9984	*
	38.0	10571	10829	1.2632	117.2655	*
	40.0	10582	10840	1.2500	117.5016	*
	42.0	10591	10849	1.2381	117.6969	*
	44.0	10599	10857	1.2273	117.8714	*
	46.0	10607	10864	1.2174	118.0285	*
	48.0	10613	10871	1.2083	118.1730	*
	50.0	10619	10876	1.2000	118.2920	*
	52.0	10624	10881	1.1923	118.4048	*
	54.0	10629	10886	1.1852	118.5072	*
	56.0	10633	10890	1.1786	118.5976	*
	58.0	10637	10894	1.1724	118.6844	*
	60.0	10640	10898	1.1667	118.7663	*
4	61.0	10642	10900	1.1639	118.8023	*

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

Paramount etal Liard A-01
60.100/123.150
DST# 5
Recorder W35

Build-up and Flow Curve Increments

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
5	0.0	283
	3.0	307
	6.0	326
	9.0	344
	12.0	360
	15.0	373
	18.0	384
	21.0	397
	24.0	410
	27.0	421
	30.0	432
	33.0	443
	36.0	453
	39.0	462
	42.0	469
	45.0	478
	48.0	486
	51.0	495
	54.0	502
	57.0	510
	60.0	518
	63.0	526
	66.0	533
	69.0	540
	72.0	547
	75.0	554
	78.0	559
	81.0	566
	84.0	573
	87.0	580
	90.0	586
	93.0	593
	96.0	600
	99.0	607
	102.0	614
	105.0	620
	108.0	627
	111.0	634

Shutin# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Pressure² (kPag²/10^6)	Used for Extrap
	0.0		537		0.2886	
	5.0	4009	4546	27.1000	20.6662	
	10.0	6530	7068	14.0500	49.9520	
	15.0	7943	8480	9.7000	71.9067	
	20.0	8759	9296	7.5250	86.4178	
	25.0	9253	9790	6.2200	95.8519	
	30.0	9557	10095	5.3500	101.9015	
	35.0	9756	10293	4.7286	105.9408	
	40.0	9888	10425	4.2625	108.6819	
	45.0	9981	10518	3.9000	110.6249	
	50.0	10044	10581	3.6100	111.9558	
	55.0	10096	10633	3.3727	113.0689	
	60.0	10135	10672	3.1750	113.8919	
	65.0	10164	10702	3.0077	114.5236	
	70.0	10189	10726	2.8643	115.0515	
	75.0	10209	10746	2.7400	115.4752	
	80.0	10225	10762	2.6313	115.8279	
	85.0	10239	10777	2.5353	116.1357	
	90.0	10250	10787	2.4500	116.3587	
	95.0	10261	10798	2.3737	116.5952	
	100.0	10270	10808	2.3050	116.8053	
	105.0	10279	10816	2.2429	116.9819	
	110.0	10286	10823	2.1864	117.1365	
	115.0	10293	10830	2.1348	117.2830	
	120.0	10298	10836	2.0875	117.4094	
	125.0	10304	10841	2.0440	117.5266	*
	130.0	10309	10846	2.0038	117.6349	*
	135.0	10313	10850	1.9667	117.7279	*
	140.0	10317	10855	1.9321	117.8211	*
	145.0	10321	10858	1.9000	117.9068	*
	150.0	10325	10862	1.8700	117.9789	*
	155.0	10328	10865	1.8419	118.0481	*
	160.0	10331	10868	1.8156	118.1163	*
	165.0	10334	10871	1.7909	118.1809	*
	170.0	10337	10874	1.7676	118.2417	*
	175.0	10339	10876	1.7457	118.2931	*
	180.0	10342	10879	1.7250	118.3462	*
	185.0	10343	10880	1.7054	118.3744	*

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

Paramount etal Liard A-01
60.100/123.150
DST# 5
Recorder W35

Build-up and Flow Curve Increments

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
	114.0	641
	117.0	645
	120.0	652
6	120.5	537

Shutin# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Pressure² (kPag²/10^6)	Used for Extrap
	190.0	10346	10883	1.6868	118.4449	*
	195.0	10348	10886	1.6692	118.4948	*
	200.0	10351	10888	1.6525	118.5455	*
	205.0	10353	10890	1.6366	118.5961	*
	210.0	10355	10892	1.6214	118.6364	*
	215.0	10357	10894	1.6070	118.6756	*
	220.0	10358	10896	1.5932	118.7151	*
	225.0	10360	10897	1.5800	118.7493	*
	230.0	10362	10899	1.5674	118.7931	*
	235.0	10364	10901	1.5553	118.8253	*
	240.0	10365	10902	1.5437	118.8591	*
7	242.5	10366	10903	1.5381	118.8716	*

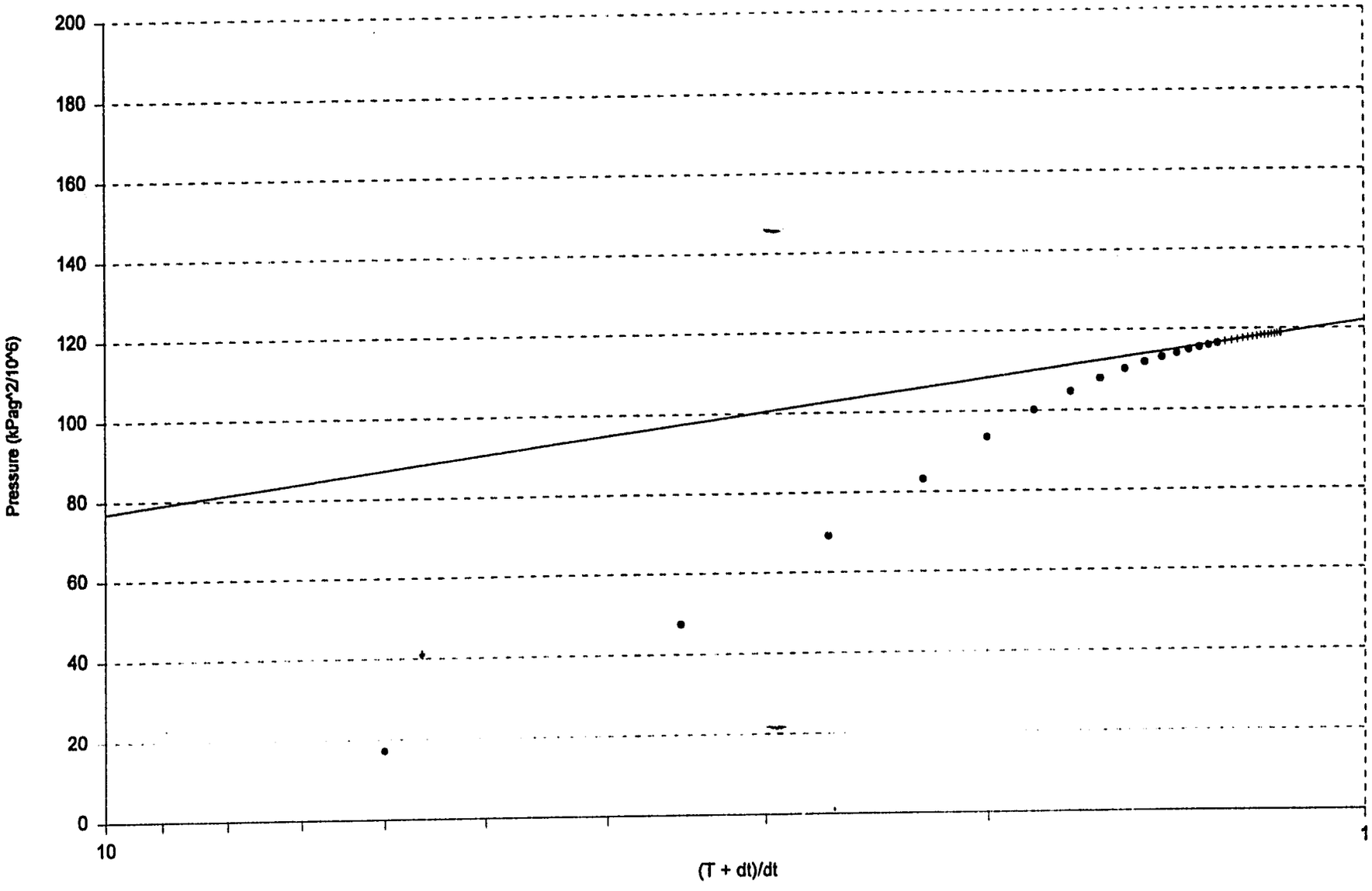
Horner Extrapolation

Shut-in#	Extrapolated Pressure (kPag)	Extrapolated Slope (kPag/cycle)
1	11036.9	44.85303
2	10995.0	10.74595

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

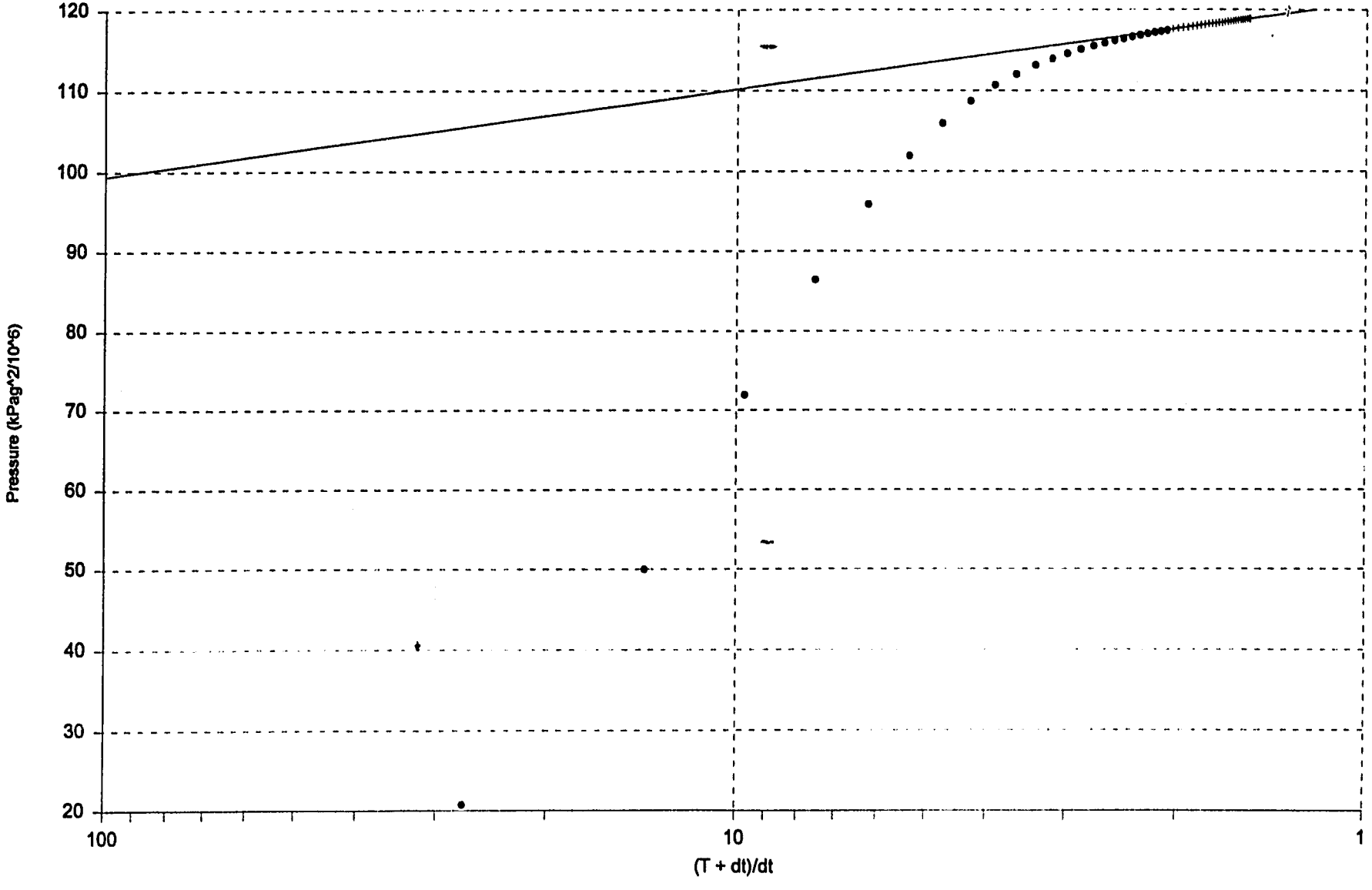
Paramount etal Liard A-01
60.100/123.150
DST #: 5
Recorder: W35

Shut-In #1
Slope = 44.85 kPag^2/10^6/cycle
Extrapolated Pressure = 11036.93 kPag



Paramount etal Liard A-01
60.100/123.150
DST #: 5
Recorder: W35

Shut-in #2
Slope = 10.75 kPag^2/10^6/cycle
Extrapolated Pressure = 10994.95 kPag



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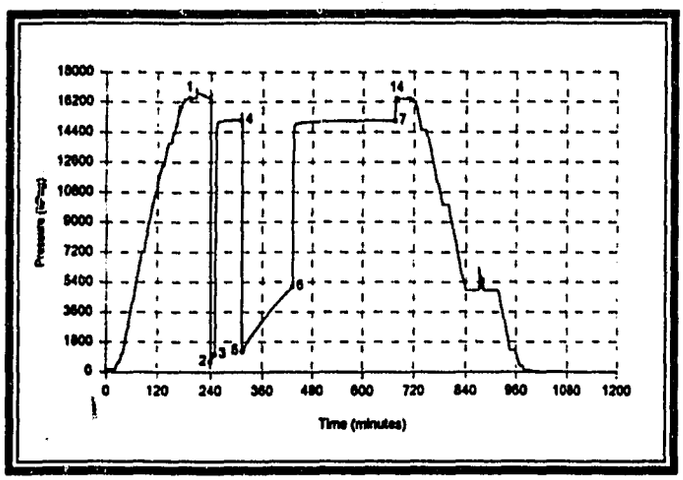
BAKER HUGHES

Baker Oil Tools

Paramount etal Liard A-01
60.100/123.150
DST# 6

Formation: Tight Hole
Interval - from: 1668.00 **to:** 1698.00 m

Recorder# W35 at 1671.00 m



Maximum Btm Hole Temperature @ FSI: 60.6 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	16389		
2	Start of 1st Flow	610		
3	End of 1st Flow	1075	10.0	
4	End of 1st Shut-in	15104	60.5	15123.3
5	Start of 2nd Flow	1239		
6	End of 2nd Flow	5134	118.5	
7	End of 2nd Shut-in	15071	241.5	15108.9
14	Final Hydrostatic	16380		

Liquid Recovery of 490.00 m

Test was reversed out.

Recovery	*Description*	*Salinity*
90.00 m	Gassy invert	
200.00 m	Gassy salt water contaminated invert	
200.00 m	Gassy salt water	50000

Test Date: 1999-03-15
Test Type: Inflate Straddle
Tester Name: Ken Willis
Drill Pipe O.D.: 114.00 mm
Drill Collar I.D.: 31.00 mm
Drill Collar Length: 96.81 m
Hole Size: 222.00 mm

Blow Description:

Weak air blow increasing to strong in 2.5 minutes and increasing throughout. No gas to surface.

Weak air blow increasing to strong in 2 minutes. GTS in 30 min. Lazy 1m flame. TSTM.

Remarks:

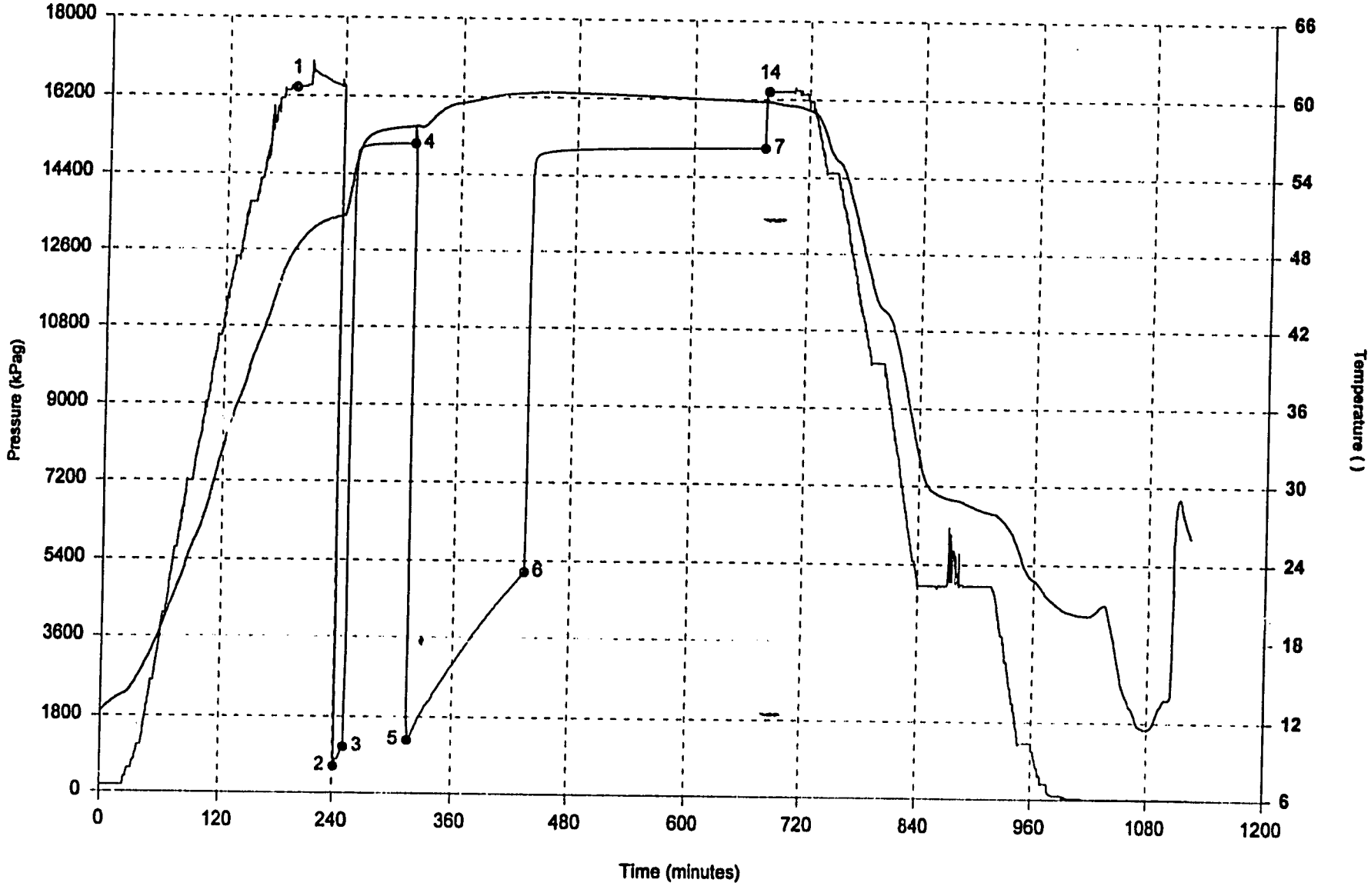
Mechanically successful test. Results suggest relatively high permeability within the interval tested. Due to reverse circulating, the fluid column lengths are estimates based on pump strokes.

BAKER OIL TOOLS DRILL STEM TESTING

Paramount etal Liard A-01
60.100/123.150
DST #: 6
Recorder: W35

Pressure (kPag) at Critical Points:

1:	16389	4:	15104	7:	15071
2:	610	5:	1239	14:	16380
3:	1075	6:	5134		

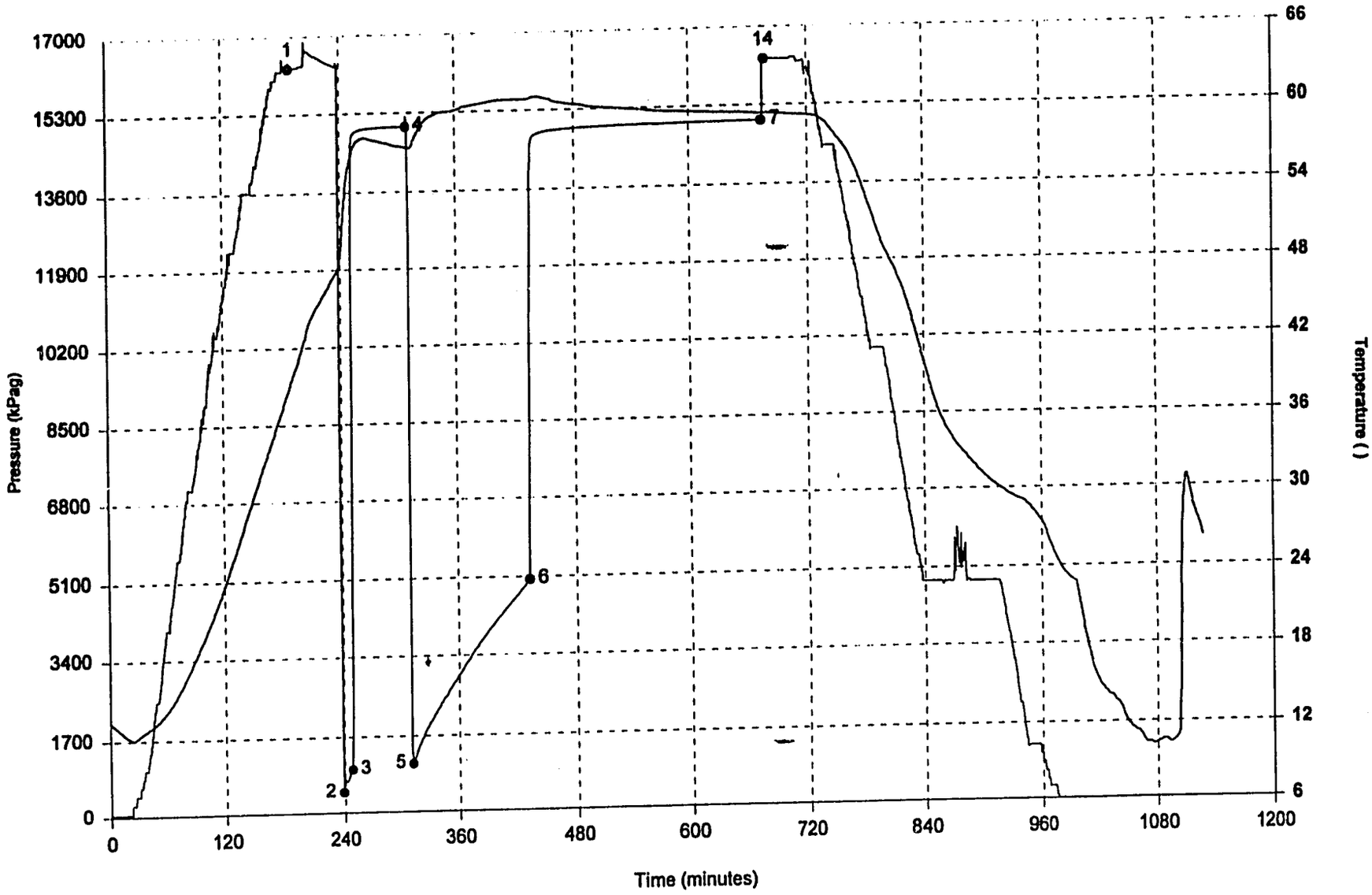


Paramount etal Liard A-01
60.100/123.150
DST #: 6
Recorder: K79

Pressure (kPag) at Critical Points:

1:	16285	4:	14999	7:	14965
2:	453	5:	1080	14:	16279
3:	965	6:	5037		

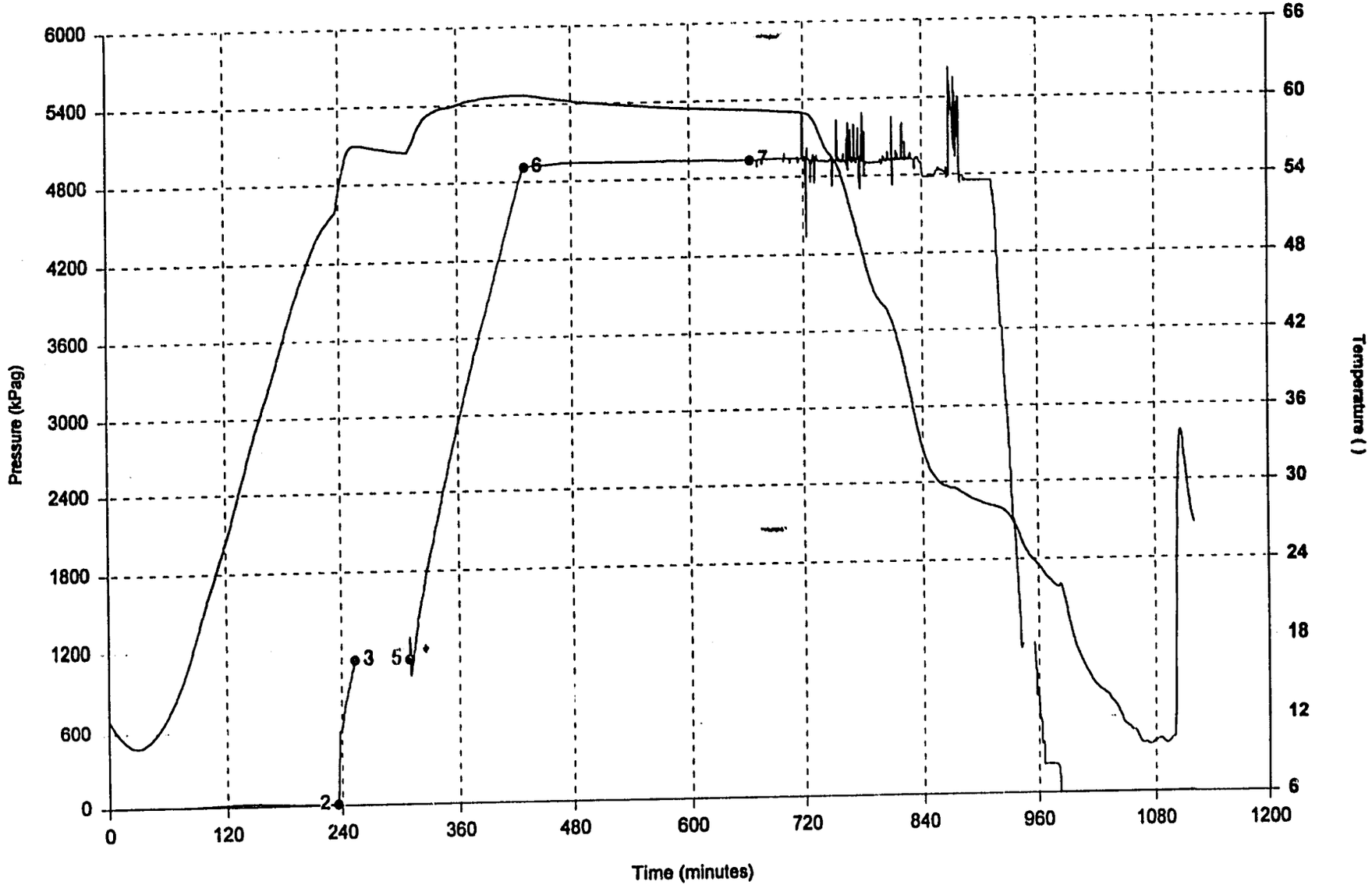
Above interval



Paramount etal Liard A-01
60.100/123.150
DST #: 6
Recorder: K78

Pressure (kPag) at Critical Points:
2: 7 6: 4911
3: 1121 7: 4935
5: 1123

Recovery recorder



Paramount etal Liard A-01
60.100/123.150
DST# 6
Recorder W35

Build-up and Flow Curve Increments

Flow# 1

Chart Label	Time (min)	Pressure (kPag)
2	0.0	610
	1.0	738
	2.0	799
	3.0	771
	4.0	775
	5.0	824
	6.0	887
	7.0	959
	8.0	994
	9.0	1042
3	10.0	1075

Shutin# 1

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	0.0		1075		
	2.0	10035	11110	6.0000	
	4.0	13794	14870	3.5000	
	6.0	13895	14970	2.6667	
	8.0	13933	15008	2.2500	
	10.0	13953	15028	2.0000	
	12.0	13967	15042	1.8333	
	14.0	13977	15052	1.7143	
	16.0	13984	15059	1.6250	
	18.0	13990	15065	1.5556	
	20.0	13995	15070	1.5000	
	22.0	13999	15074	1.4545	
	24.0	14003	15078	1.4167	*
	26.0	14007	15082	1.3846	*
	28.0	14010	15085	1.3571	*
	30.0	14012	15087	1.3333	*
	32.0	14014	15089	1.3125	*
	34.0	14016	15091	1.2941	*
	36.0	14017	15092	1.2778	*
	38.0	14019	15094	1.2632	*
	40.0	14020	15095	1.2500	*
	42.0	14021	15096	1.2381	*
	44.0	14022	15097	1.2273	*
	46.0	14023	15098	1.2174	*
	48.0	14024	15099	1.2083	*
	50.0	14025	15100	1.2000	*
	52.0	14026	15101	1.1923	*
	54.0	14026	15102	1.1852	*
	56.0	14027	15102	1.1786	*
	58.0	14028	15103	1.1724	*
	60.0	14028	15103	1.1667	*
4	60.5	14028	15104	1.1653	*

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

Paramount etal Liard A-01
60.100/123.150
DST# 6
Recorder W35

Build-up and Flow Curve Increments

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
5	0.0	1239
	2.5	1339
	5.0	1494
	7.5	1647
	10.0	1778
	12.5	1882
	15.0	1975
	17.5	2071
	20.0	2141
	22.5	2230
	25.0	2338
	27.5	2432
	30.0	2515
	32.5	2590
	35.0	2670
	37.5	2773
	40.0	2855
	42.5	2937
	45.0	3003
	47.5	3081
	50.0	3167
	52.5	3252
	55.0	3329
	57.5	3399
	60.0	3488
	62.5	3567
	65.0	3646
	67.5	3718
	70.0	3790
	72.5	3861
	75.0	3932
	77.5	4008
	80.0	4083
	82.5	4147
	85.0	4221
	87.5	4283
	90.0	4356
	92.5	4424

Shutin# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	0.0		5134		
	5.0	9646	14780	26.7000	
	10.0	9748	14883	13.8500	
	15.0	9784	14918	9.5667	
	20.0	9806	14940	7.4250	
	25.0	9822	14956	6.1400	
	30.0	9834	14969	5.2833	
	35.0	9844	14978	4.6714	
	40.0	9852	14986	4.2125	
	45.0	9859	14993	3.8556	
	50.0	9865	14999	3.5700	
	55.0	9870	15004	3.3364	
	60.0	9875	15009	3.1417	
	65.0	9879	15013	2.9769	
	70.0	9883	15017	2.8357	
	75.0	9887	15021	2.7133	
	80.0	9890	15024	2.6062	
	85.0	9893	15027	2.5118	
	90.0	9895	15029	2.4278	
	95.0	9898	15032	2.3526	
	100.0	9900	15035	2.2850	*
	105.0	9902	15037	2.2238	*
	110.0	9905	15039	2.1682	*
	115.0	9907	15041	2.1174	*
	120.0	9909	15043	2.0708	*
	125.0	9910	15044	2.0280	*
	130.0	9912	15046	1.9885	*
	135.0	9914	15048	1.9519	*
	140.0	9915	15049	1.9179	*
	145.0	9917	15051	1.8862	*
	150.0	9918	15052	1.8567	*
	155.0	9920	15054	1.8290	*
	160.0	9921	15055	1.8031	*
	165.0	9922	15056	1.7788	*
	170.0	9923	15057	1.7559	*
	175.0	9924	15058	1.7343	*
	180.0	9926	15060	1.7139	*
	185.0	9927	15061	1.6946	*

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

Paramount etal Liard A-01
60.100/123.150
DST# 6
Recorder W35

Build-up and Flow Curve Increments

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
	95.0	4494
	97.5	4562
	100.0	4628
	102.5	4696
	105.0	4763
	107.5	4828
	110.0	4889
	112.5	4958
	115.0	5031
	117.5	5096
6	118.5	5134

Shutin# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	190.0	9928	15062	1.6763	*
	195.0	9928	15063	1.6590	*
	200.0	9930	15064	1.6425	*
	205.0	9930	15065	1.6268	*
	210.0	9931	15066	1.6119	*
	215.0	9932	15067	1.5977	*
	220.0	9933	15067	1.5841	*
	225.0	9934	15068	1.5711	*
	230.0	9935	15069	1.5587	*
	235.0	9935	15070	1.5468	*
	240.0	9936	15070	1.5354	*
7	241.5	9936	15071	1.5321	*

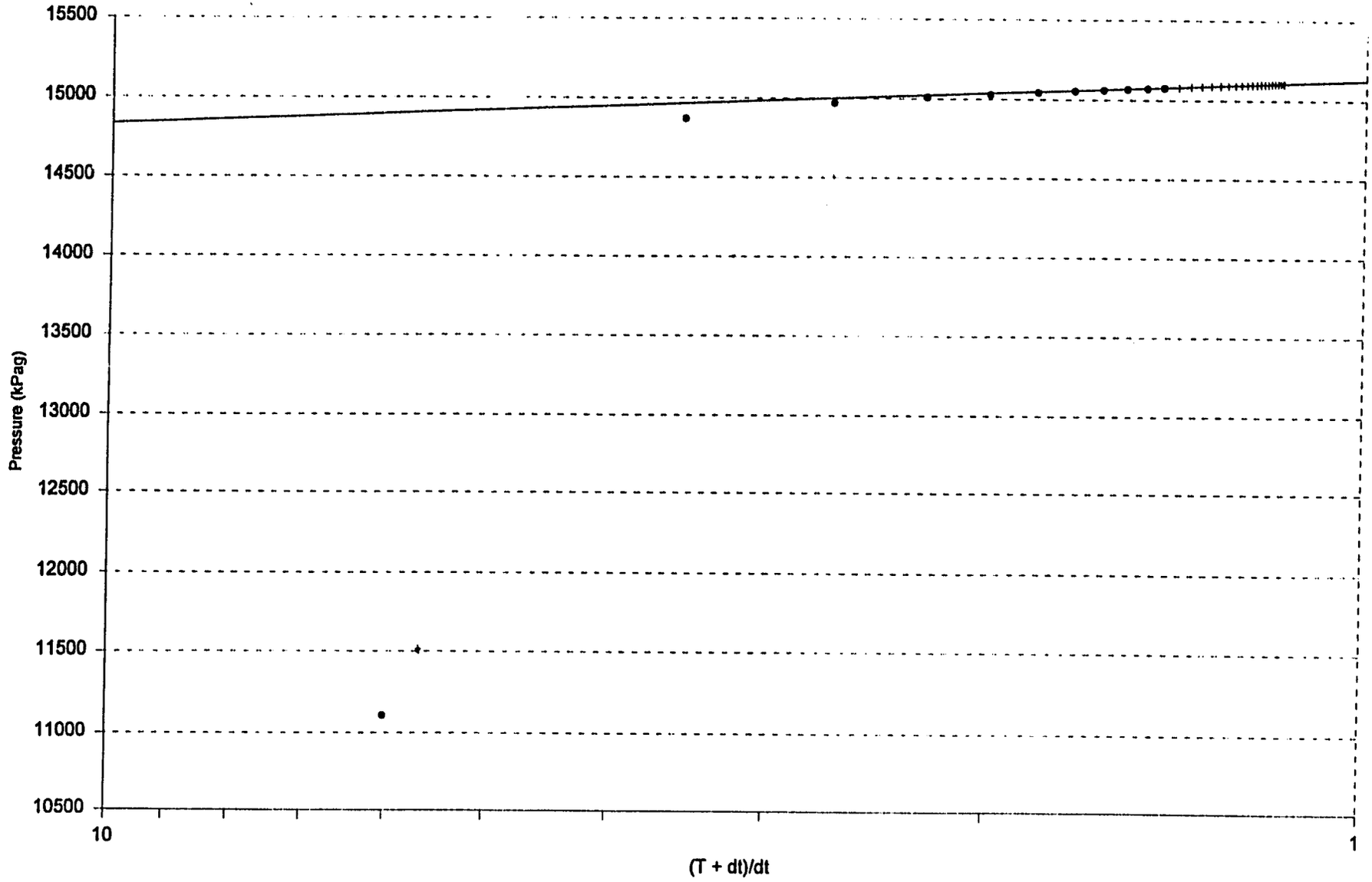
Horner Extrapolation

Shut-in#	Extrapolated Pressure (kPag)	Extrapolated Slope (kPag/cycle)
1	15123.3	292.30370
2	15108.9	209.18337

Note: Increment listing is filtered to include critical data only. Complete time/pressure data are available in electronic or printed format.

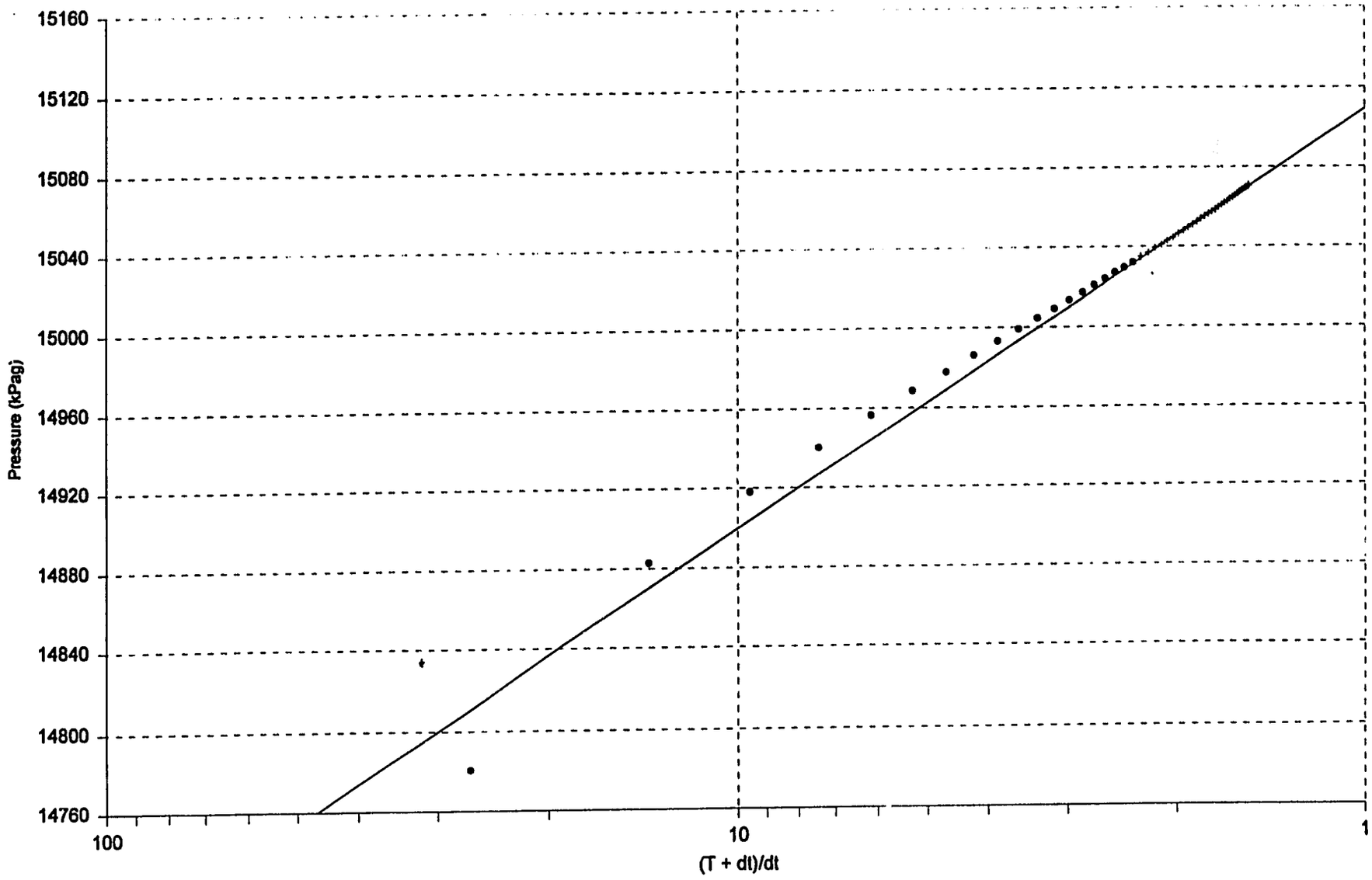
Paramount etal Liard A-01
60.100/123.150
DST #: 6
Recorder: W35

Shut-in #1
Slope = 292.30 kPag/cycle
Extrapolated Pressure = 15123.27 kPag



Paramount etal Liard A-01
60.100/123.150
DST #: 6
Recorder: W35

Shut-in #2
Slope = 209.18 kPag/cycle
Extrapolated Pressure = 15108.91 kPag



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BAKER HUGHES

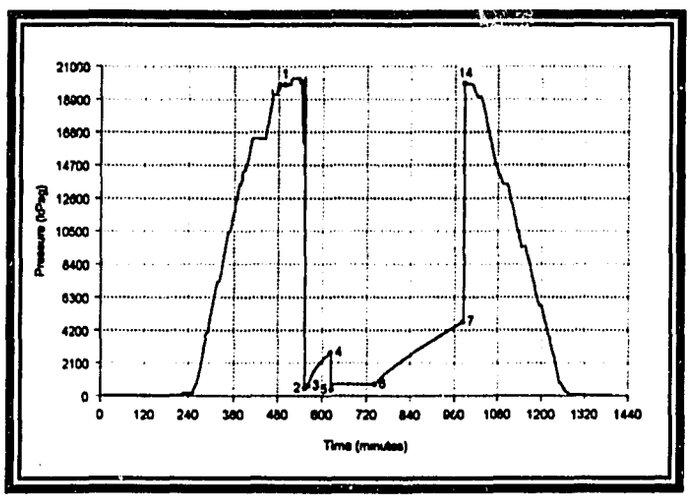
PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 7

Baker Oil Tools

Formation: Tight Hole
Interval - from: 2,028.00 **to:** 2,046.00 meters

Test Date: 1999-03-20
Test Type : Inflate Bottom Hole

Recorder# 70300 at 2,031.00 meters



Max Btm Hole Temperature @ FSI: 68.0 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	19804		
2	Start of 1st Flow	452		
3	End of 1st Flow	611	9.0	
4	End of 1st Shut-in	2732	59.5	
5	Start of 2nd Flow	376		
6	End of 2nd Flow	735	119.5	
7	End of 2nd Shut-in	4693	241.0	
14	Final Hydrostatic	19863		

Liquid Recovery 62.00 meters

Recovery	*Description*
62.00 m	GASIFIED INVERT

Blow Description:

PREFLOW: Weak air blow increasing to good in 30 seconds then decreasing to fair by the end of the flow. No gas to surface.

FINAL FLOW: Weak air blow increasing to strong in 30 seconds then decreasing after 4 minutes to fair by the end of the flow. No gas to surface.

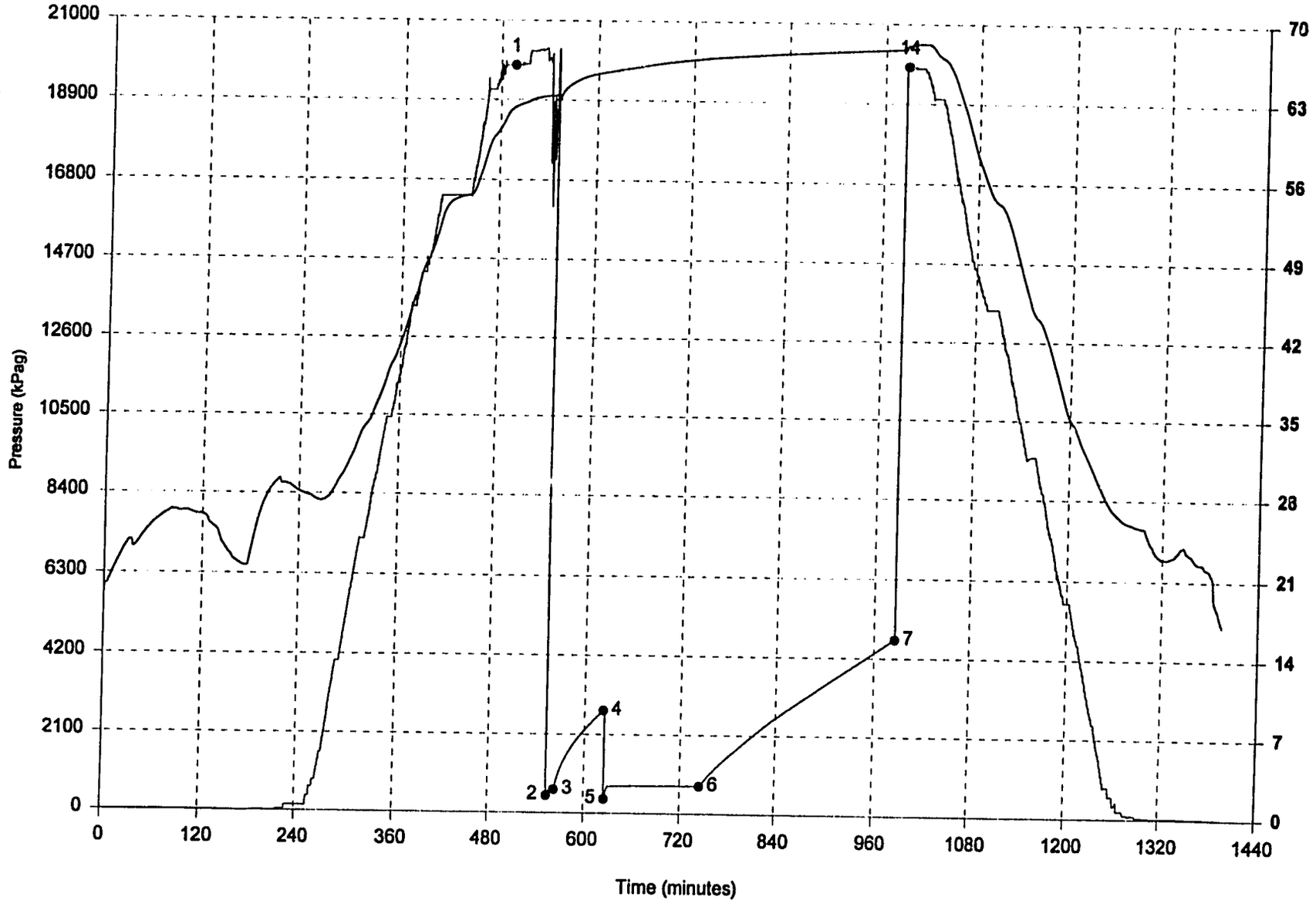
Remarks:

Mechanically successful test. Results suggest very low permeability within the interval tested. The tool was opened 5 times and skidded 2 meters before starting the preflow.

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 7
Recorder: 70300

Pressure (kPag) at Critical Points:

1:	19804	4:	2732	7:	4693
2:	452	5:	376	14:	19863
3:	611	6:	735		



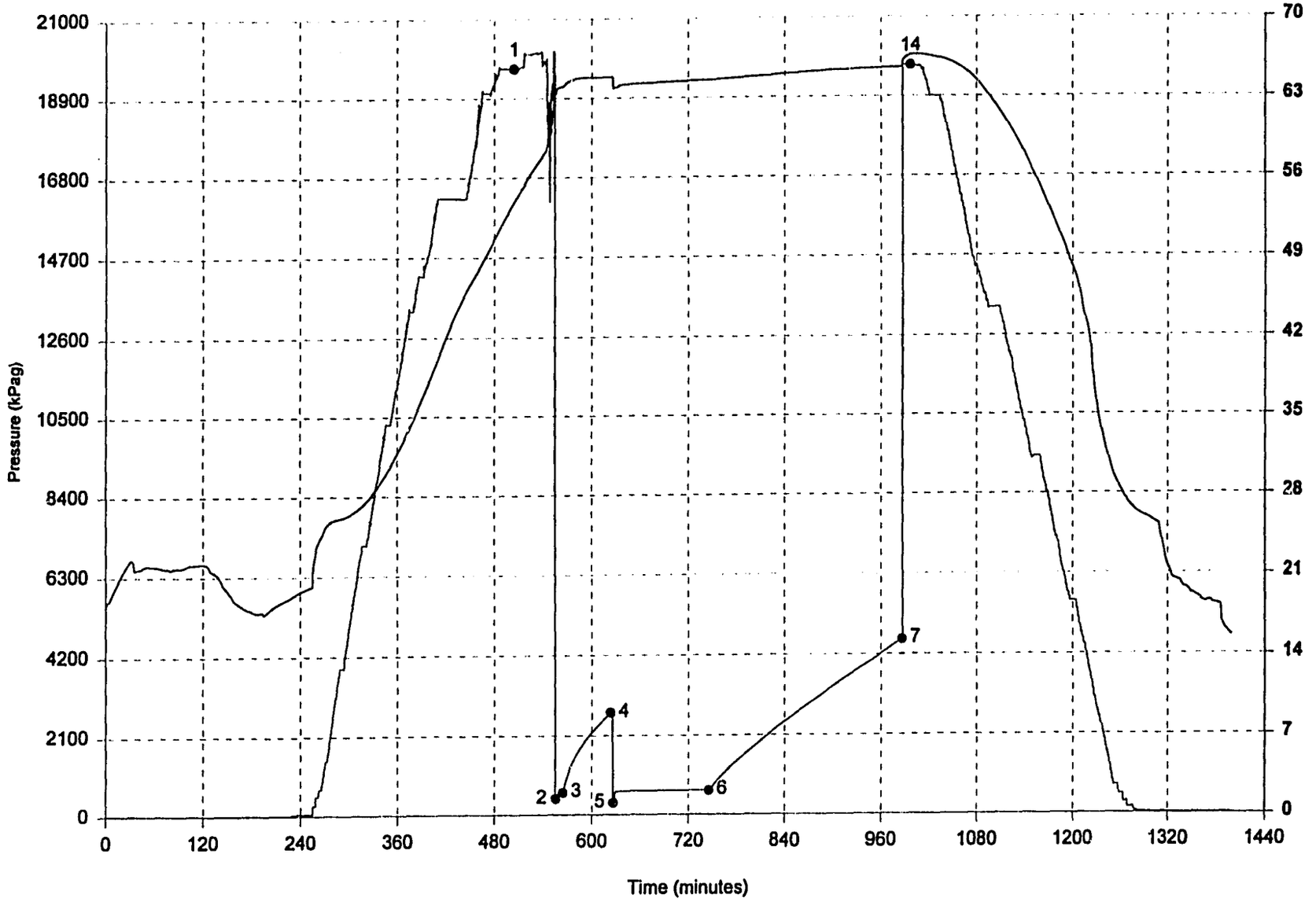
BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 7
Recorder: 71005

Pressure (kPag) at Critical Points:

1:	19679	4:	2702	7:	4577
2:	411	5:	307	14:	19718
3:	583	6:	633		

Above interval

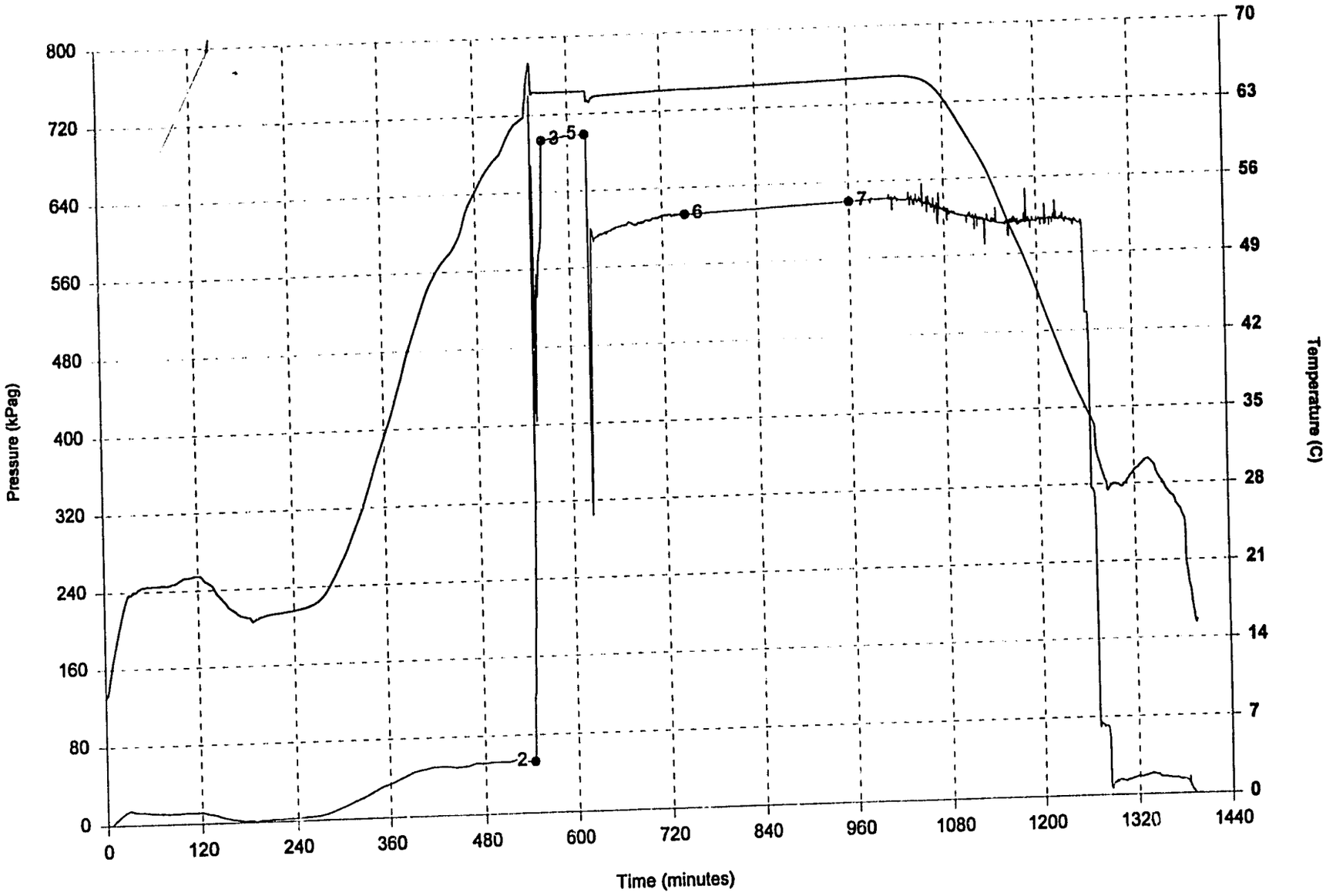


BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 7
Recorder: 70390

Pressure (kPag) at Critical Points:
2: 52 6: 612
3: 694 7: 620
5: 698

Recovery recorder



BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 7

General Information:

Operator: Paramount Resources Ltd.
4000, 350 - 7th Avenue S.W.
Calgary Alberta T2P 3W5

Tester: Sampietro M
Ticket#: 807943
Reverse Circulated? N
KB Elevation: 522.40 meters
Ground Elevat'n: 517.40 meters
Total Depth: 2,046.00 meters

Mud Data:

Weight: 10 kg/m3
Type: Invert
Viscosity: 38 s/l
Filter Cake: 1.0 mm

Hole Data:

Drilled Hole Size: 222 mm
Calipered Hole Size: 250 mm
Hole Condition at Test Time: Good
Conditioned prior to this test? N

Recorder Summary:

Recorder#	*Type*	*Position*	*Capacity*	*Units*	*Depth*	*Comments*
70390	SPAR	Inside	34500	kPag	2,014.70	Recovery recorder
71005	SPAR	Inside	68900	kPag	2,019.64	Above interval
14878	K-3	Outside	41400	kPag	2,031.00	
70300	SPAR	Outside	68900	kPag	2,031.00	

Distributions:

Reports Sent To: Wayne Tomm
Fluid Samples - no of: 4 Sent To: AGAT

Bottom Hole Sampler#	*Sent To*
159	AGAT
442	AGAT

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 7

Tool Sequence:

Diagram	*Description*	*Length*
	Pump Out Sub	0.33 m
	Cross Over Sub	0.30 m
	Pump Out Sub	0.33 m
	Recorder Carrier	1.38 m
	Hydraulic Tool	1.50 m
	Bottom Hole Sampler	1.03 m
	Bottom Hole Sampler	1.03 m
	Recorder Carrier	1.38 m
	Hydraulic Jars	2.22 m
	Safety Joint	0.65 m
	Inflate Pump	2.38 m
	Screen	1.16 m
	Top Inflate Packer	1.78 m
	Packer Stick Down	0.82 m
	Port Sub	0.31 m
	Recorder Carrier	2.04 m
	Blank Off Sub	0.30 m
	Spacing	1.21 m
	Cross Over Sub	0.30 m
	Drill Collar	10.54 m
	Cross Over Sub	0.30 m
	Belly Spring	2.31 m

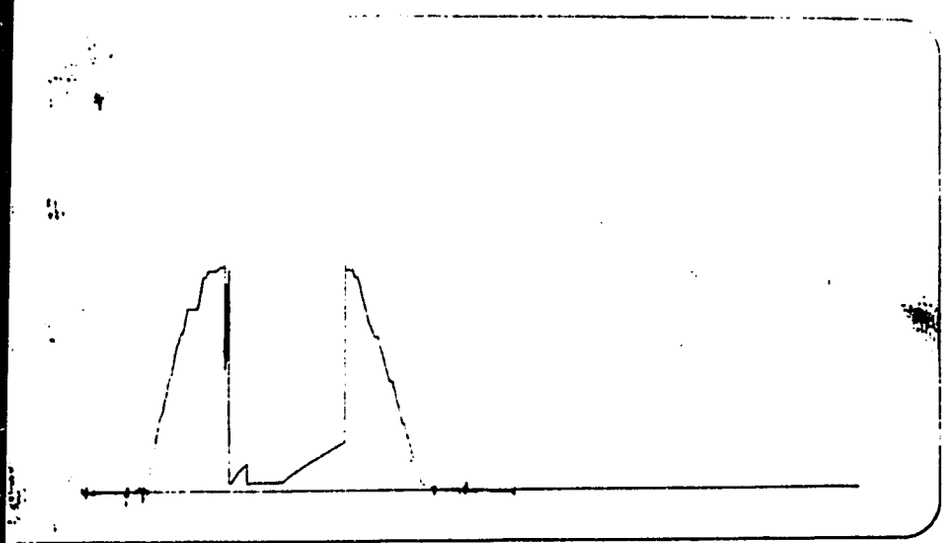
Tool String Length:	33.60 m
Drill Collar I.D.: 61 mm	67.00 m
Drill Pipe O.D.: 144 mm	1,953.53 m
Collar Pipe Total:	2,020.53 m
Stick Up:	8.00 m
Tool Above:	15.47 m
Interval Tested:	18.00 m
Bottom Hole Choke Size:	25.40 mm

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 7

Recorder# 14878

Depth: 2,031.00 m
Location: Outside

Recorder Type: K-3
Capacity: 41,400 kPag

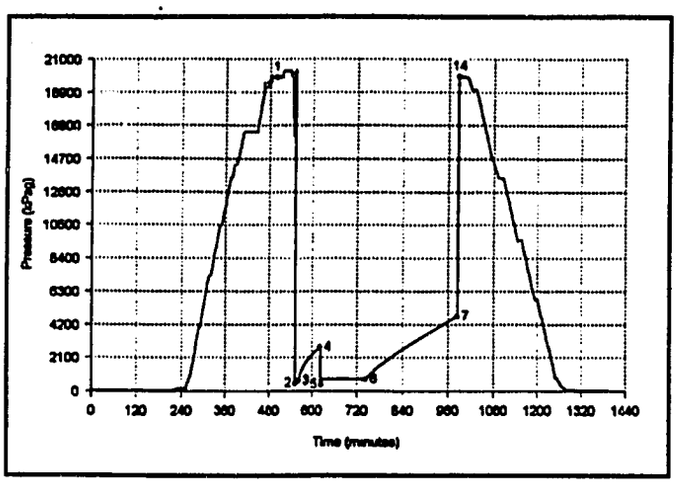


		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	19800	
2	Start of 1st Flow	809	
3	End of 1st Flow	809	9.0
4	End of 1st Shut-in	2692	59.5
5	Start of 2nd Flow	750	
6	End of 2nd Flow	867	119.5
7	End of 2nd Shut-in	4539	241.0
14	Final Hydrostatic	19800	

Recorder# 70300

Depth: 2,031.00 m
Temperature: 68.0 C
Location: Outside

Recorder Type: SPAR
Capacity: 68,900 kPag



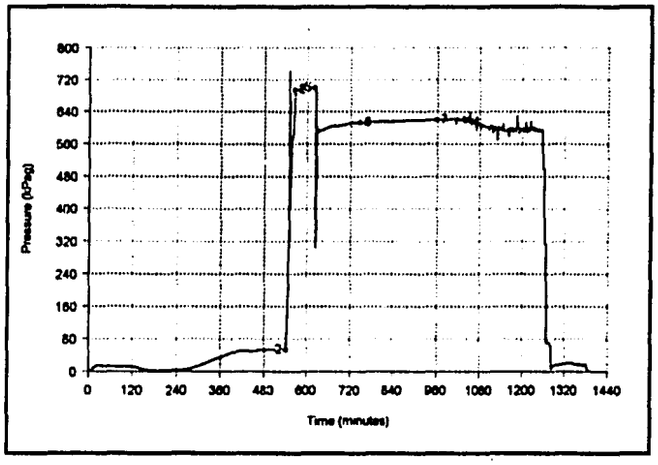
		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	19804	
2	Start of 1st Flow	452	
3	End of 1st Flow	611	9.0
4	End of 1st Shut-in	2732	59.5
5	Start of 2nd Flow	376	
6	End of 2nd Flow	735	119.5
7	End of 2nd Shut-in	4693	241.0
14	Final Hydrostatic	19863	

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 7

Recorder# 70390

Depth: 2,014.70 m
Temperature: 65.5 C
Location: Inside

Recorder Type: SPAR
Capacity: 34,500 kPag
Comments: Recovery recorder

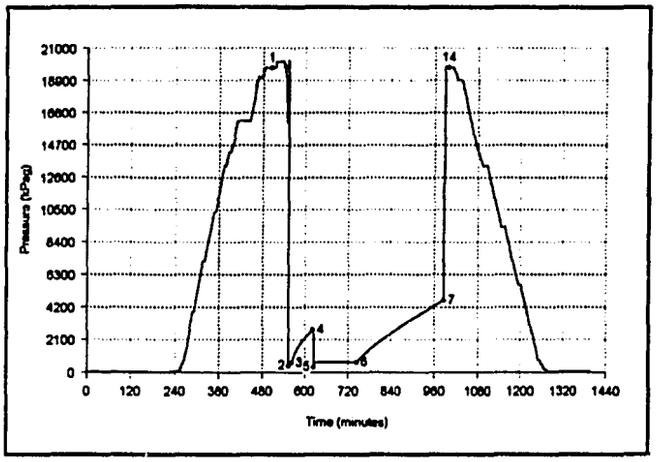


		Pressure (kPag)	Time (min)
2	Start of 1st Flow	52	
3	End of 1st Flow	694	9.0
5	Start of 2nd Flow	698	
6	End of 2nd Flow	612	119.5
7	End of 2nd Shut-in	620	241.0

Recorder# 71005

Depth: 2,019.64 m
Temperature: 65.5 C
Location: Inside

Recorder Type: SPAR
Capacity: 68,900 kPag
Comments: Above interval



		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	19679	
2	Start of 1st Flow	411	
3	End of 1st Flow	583	9.0
4	End of 1st Shut-in	2702	59.5
5	Start of 2nd Flow	307	
6	End of 2nd Flow	633	119.5
7	End of 2nd Shut-in	4577	241.0
14	Final Hydrostatic	19718	

N.E.B. COPY

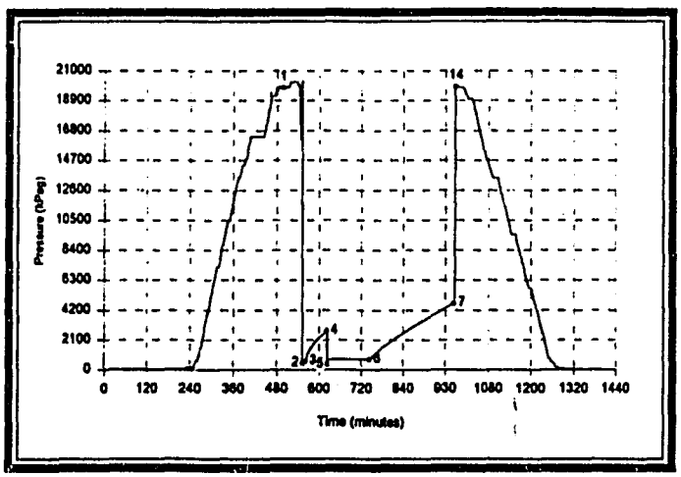
PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST# 7

BAKER HUGHES

Baker Oil Tools

Formation: TIGHT HOLE
Interval - from: 2028.00 **to:** 2046.00 m

Recorder# 70300 at 2031.00 m



Maximum Btm Hole Temperature @ FSI: 68.0 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	19804		
2	Start of 1st Flow	452		
3	End of 1st Flow	611	9.0	
4	End of 1st Shut-in	2732	59.5	
5	Start of 2nd Flow	376		
6	End of 2nd Flow	735	119.5	
7	End of 2nd Shut-in	4693	241.0	
14	Final Hydrostatic	19863		

Liquid Recovery of 62.00 m

Recovery	*Description*	*Salinity*
62.00 m	GASIFIED INVERT	

Test Date: 1999-03-20
Test Type: INFLATE BTM. HOLE
Tester Name: MARC SAMPIETRO
Drill Pipe O.D.: 144.00 mm
Drill Collar I.D.: 61.00 mm
Drill Collar Length: 67.00 m
Hole Size: 222.00 mm

Blow Description:

Weak air blow increasing to good in 30 seconds then decreasing to fair by the end of the flow. No gas to surface.

Weak to strong in 30 secs then decreasing after 4 mins. to fair by the end of the flow. No gas.

Remarks:

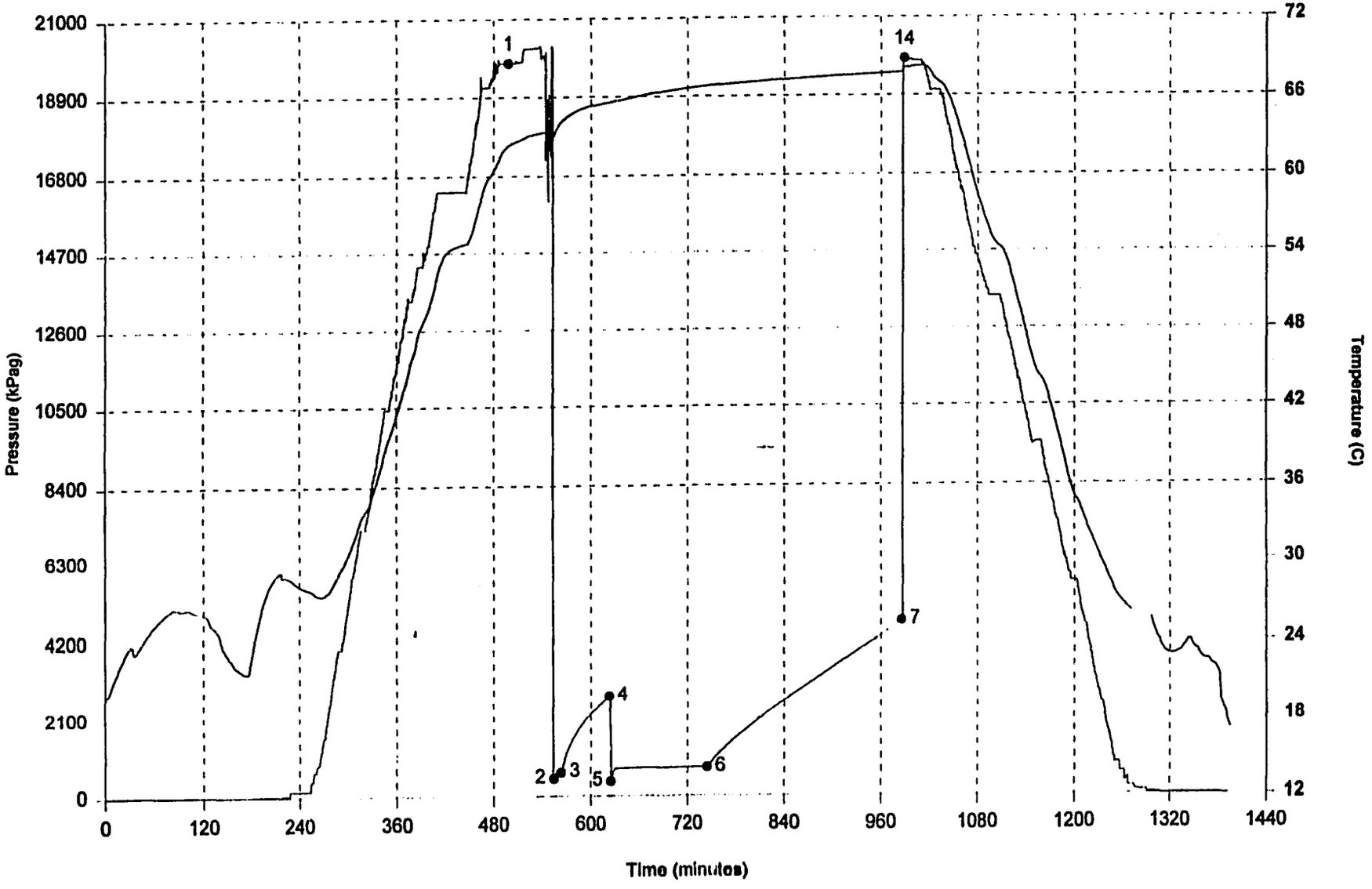
Mechanically successful test. Results suggest very low permeability within the interval tested. The tool was opened 5 times and skidded 2 meters before starting the preflow.

BAKER OIL TOOLS DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 7
Recorder: 70300

Pressure (kPag) at Critical Points:

1:	19804	4:	2732	7:	4693
2:	452	5:	376	14:	19863
3:	611	6:	735		

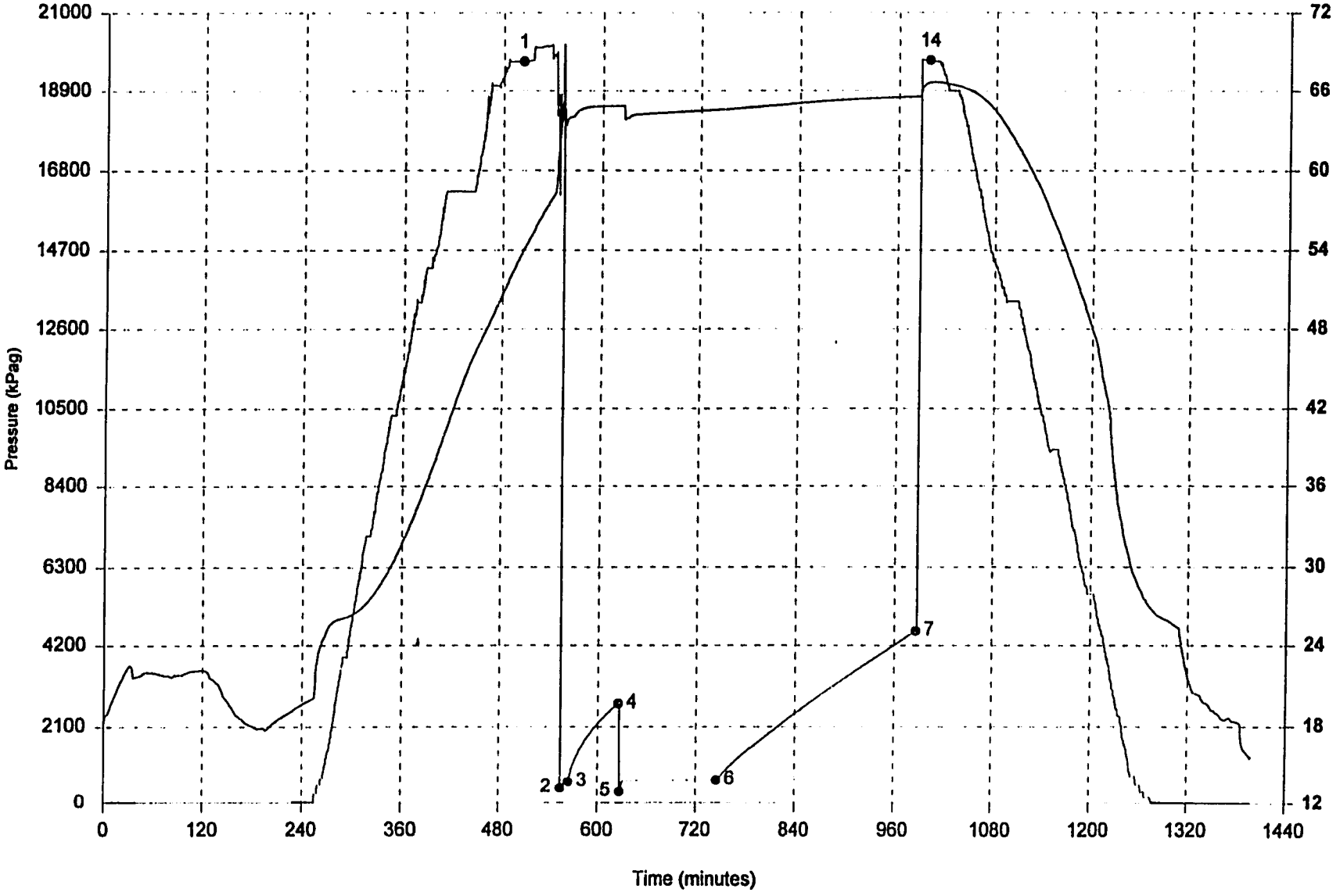


PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 7
Recorder: 71005

Pressure (kPag) at Critical Points:

1:	19679	4:	2702	7:	4577
2:	411	5:	307	14:	19718
3:	583	6:	633		

Above interval



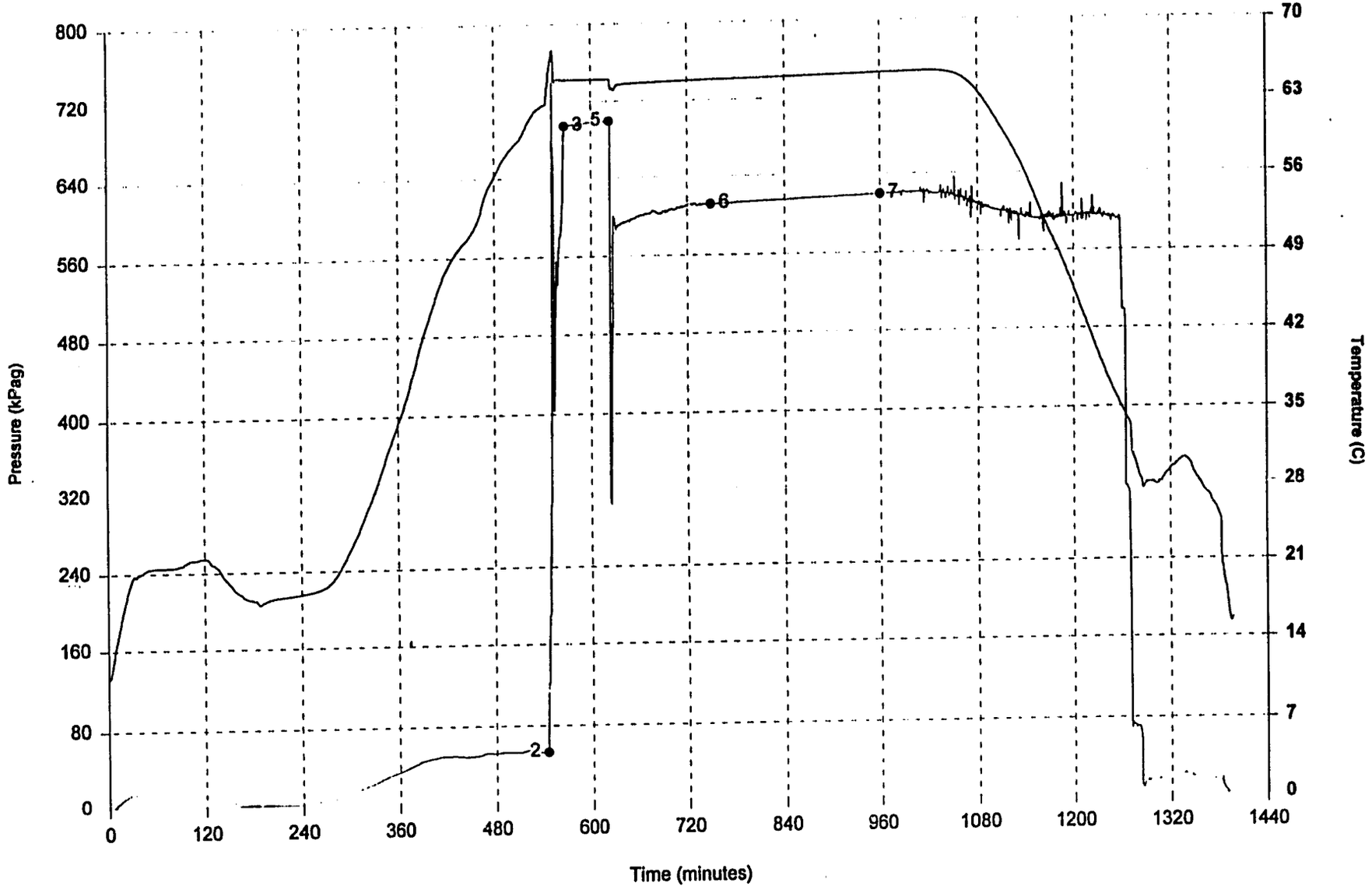
BAKER OIL TOOLS DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 7
Recorder: 70390

Pressure (kPag) at Critical Points:

2:	52	6:	612
3:	694	7:	620
5:	698		

Recovery recorder



N.E.B. COPY

BAKER HUGHES

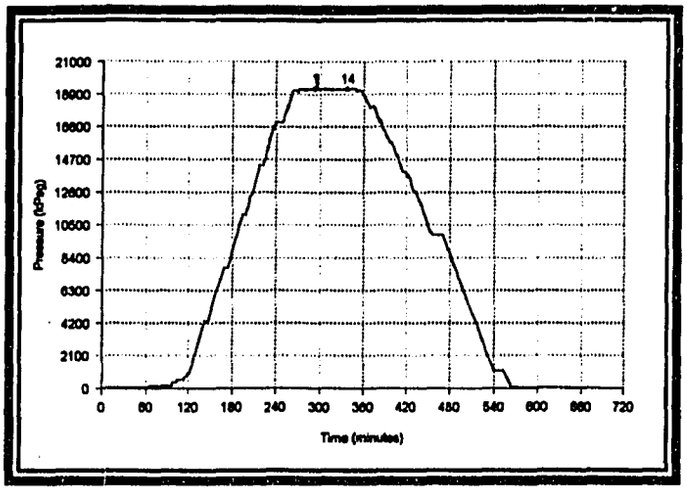
PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 8

Baker Oil Tools

Formation: Tight Hole
Interval - from: 1,955.00 **to:** 1,965.00 meters

Test Date: 1999-03-21
Test Type : Inflate Straddle

Recorder# 70300 at 1,958.00 meters



Blow Description:

Misrun.

Remarks:

Misrun - unable to obtain a packer seat. Ruptured the bottom element.

Max Btm Hole Temperature @ FSI: 63.1 C

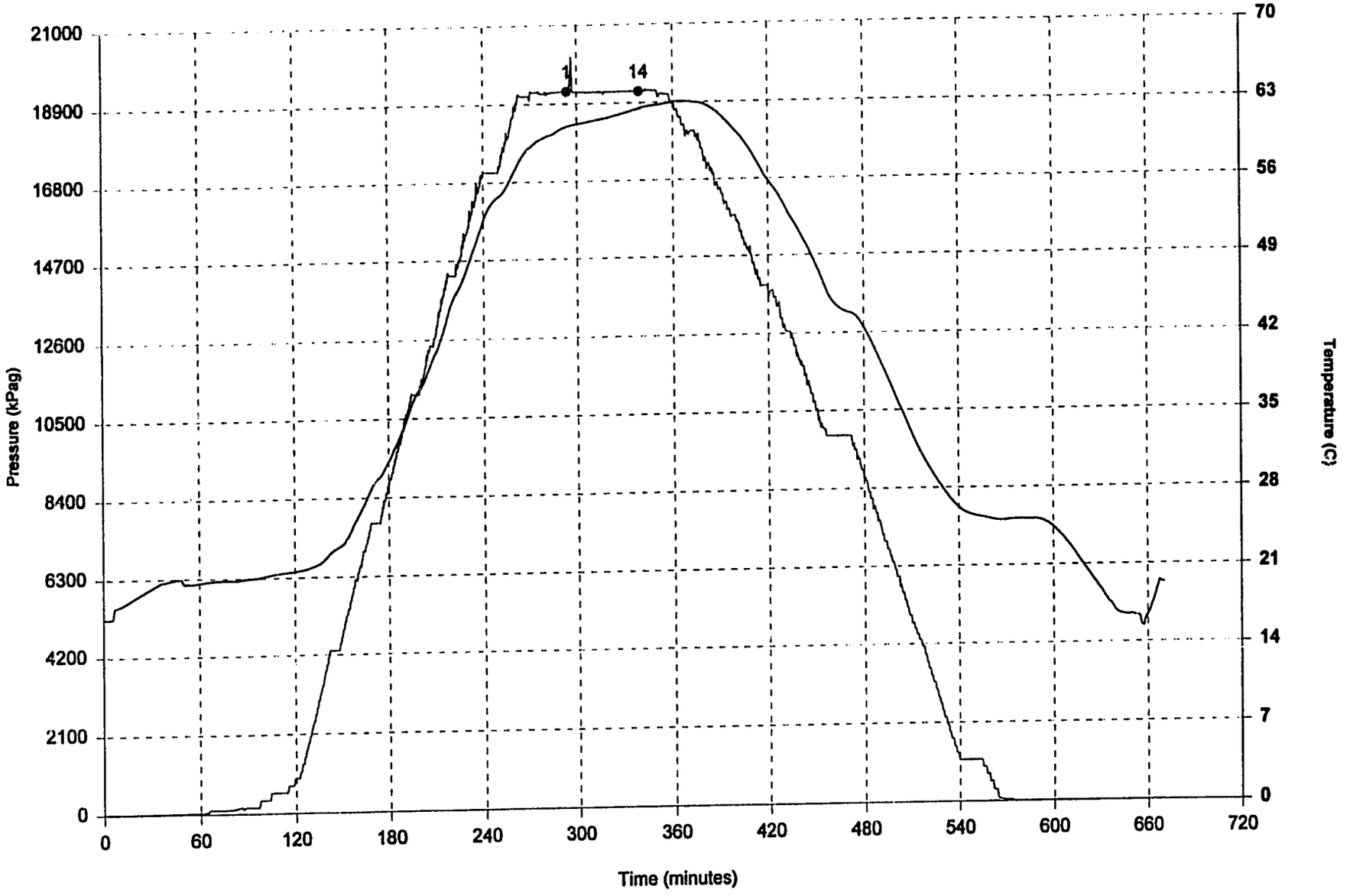
		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	19219		
14	Final Hydrostatic	19198		

Liquid Recovery 0.00 meters

Recovery	*Description*
0.00 m	NO FLUID RECOVERED

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 8
Recorder: 70300

Pressure (kPag) at Critical Points:
1: 19219
14: 19198

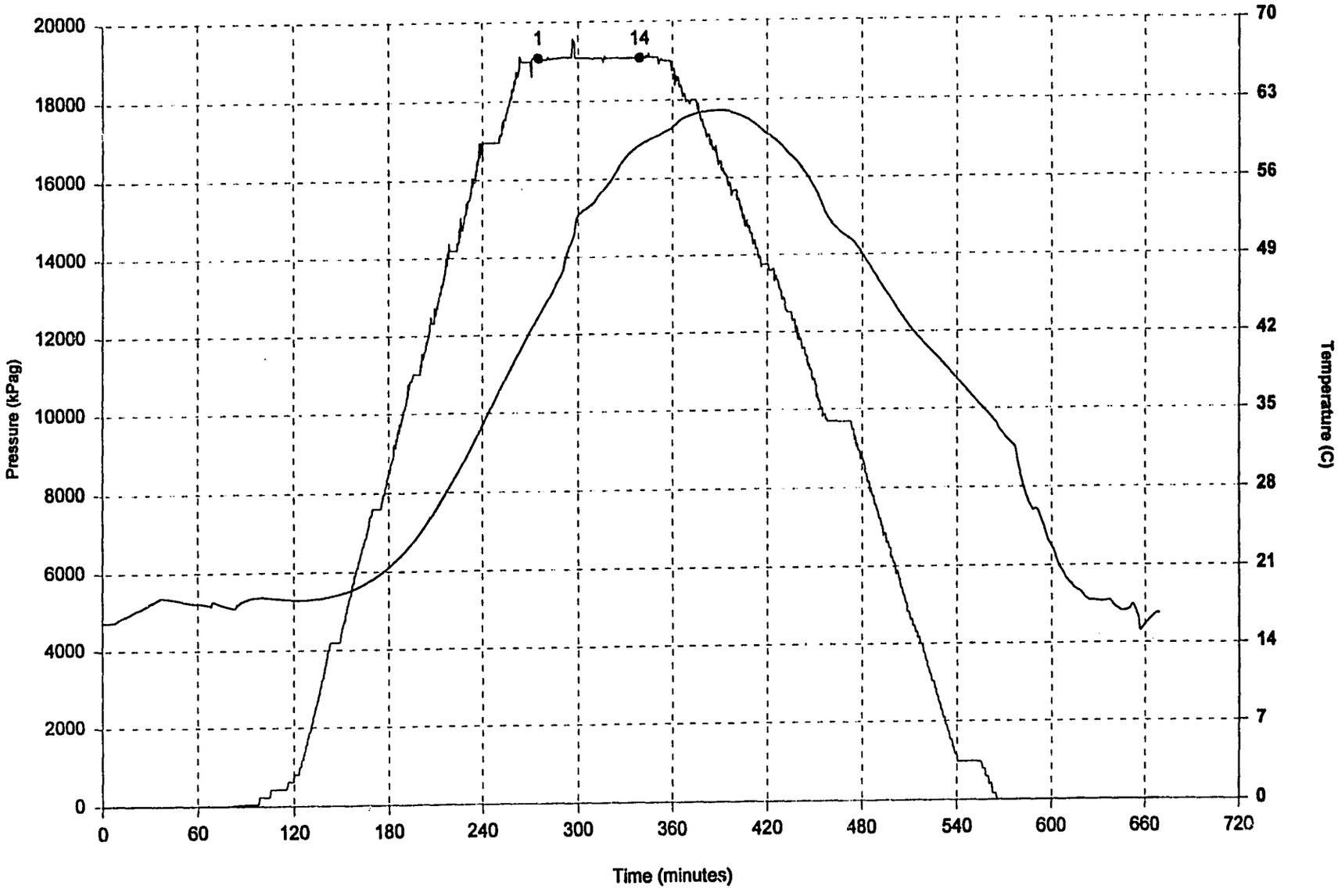


BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 8
Recorder: 71005

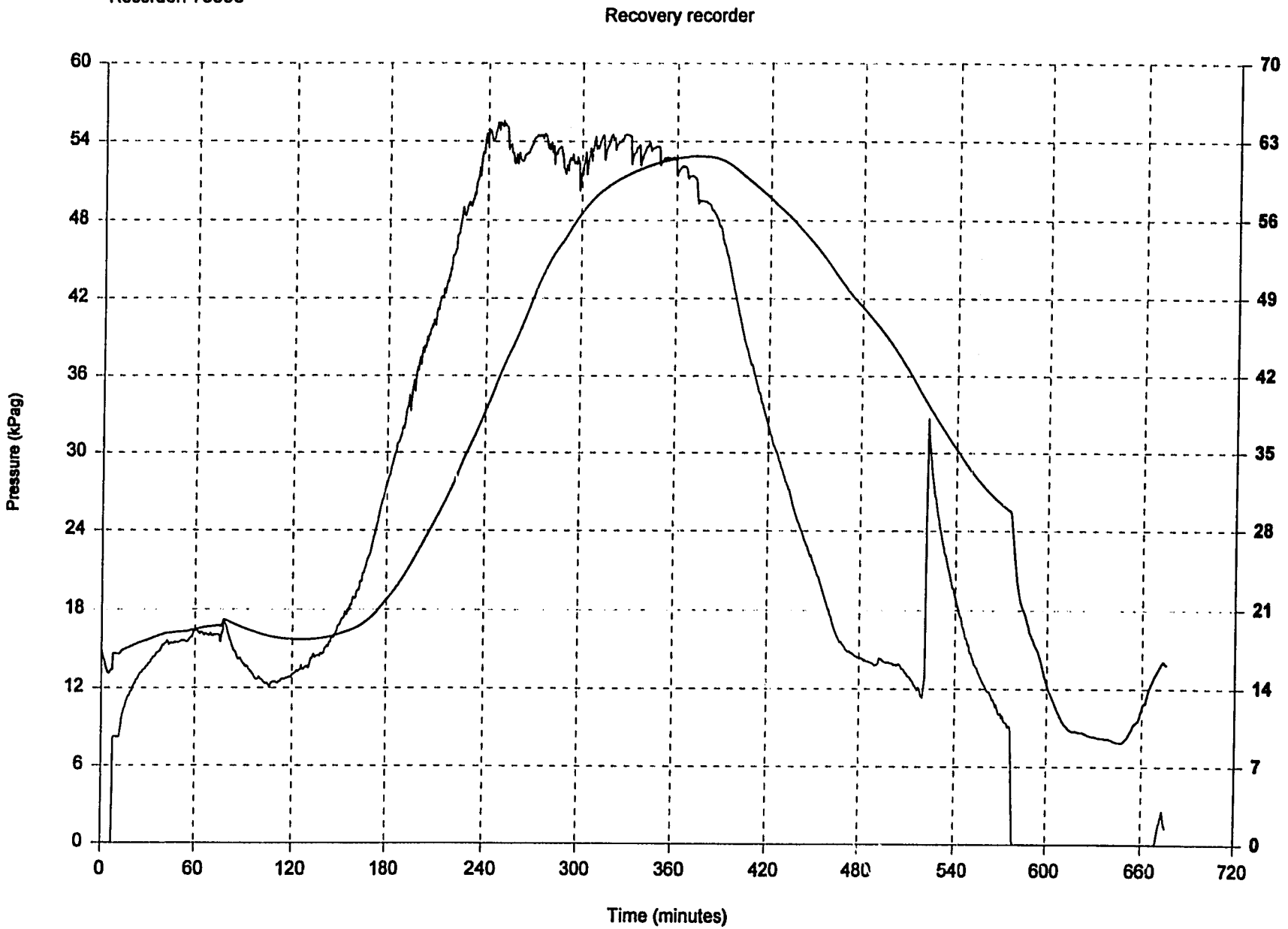
Pressure (kPag) at Critical Points:
1: 19080
14: 19068

Above interval



BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 8
Recorder: 70390



PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 8

General Information:

Operator: Paramount Resources Ltd.
4000, 350 - 7th Avenue S.W.
Calgary Alberta T2P 3W5

Tester: Sampietro M
Ticket#: 807944
Reverse Circulated? N
KB Elevation: 522.40 meters
Ground Elevat'n: 517.40 meters
Total Depth: 2,046.00 meters

Mud Data:

Weight: 970 kg/m3
Type: Invert
Viscosity: 50 s/l

Filter Cake: 1.0 mm

Hole Data:

Drilled Hole Size: 222 mm
Calipered Hole Size: 250 mm
Hole Condition at Test Time: Good
Conditioned prior to this test? N

Recorder Summary:

Recorder#	*Type*	*Position*	*Capacity*	*Units*	*Depth*	*Comments*
70390	SPAR	Inside	34500	kPag	1,941.70	Recovery recorder
71005	SPAR	Inside	68900	kPag	1,946.64	Above interval
14878	K-3	Outside	41400	kPag	1,958.00	
70300	SPAR	Outside	68900	kPag	1,958.00	

Distributions:

Reports Sent To: Wayne Tomm

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 8

Tool Sequence:



Diagram	*Description*	*Length*
	Pump Out Sub	0.33 m
	Cross Over Sub	0.30 m
	Pump Out Sub	0.33 m
	Recorder Carrier	1.38 m
	Hydraulic Tool	1.50 m
	Bottom Hole Sampler	1.03 m
	Bottom Hole Sampler	1.03 m
	Recorder Carrier	1.38 m
	Hydraulic Jars	2.22 m
	Safety Joint	0.65 m
	Inflate Pump	2.38 m
	Screen	1.16 m
	Top Inflate Packer	1.78 m
	Packer Stick Down	0.82 m
	Port Sub	0.31 m
	Recorder Carrier	2.04 m
	Blank Off Sub	0.30 m
	Spacing	6.10 m
	Packer Stick Up	0.42 m
	Bottom Inflate Packer	1.90 m
	Belly Spring	2.31 m

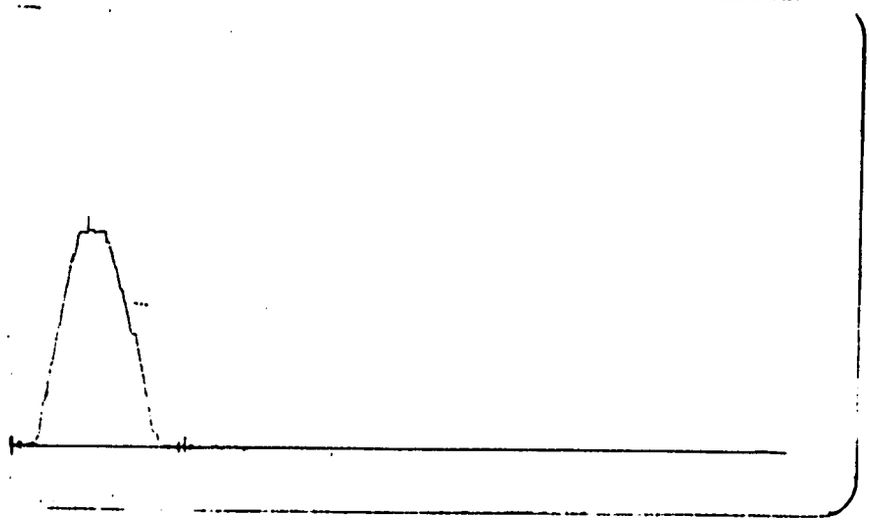
Tool String Length:	29.67 m
Drill Collar I.D.: 61 mm	76.55 m
Drill Pipe O.D.: 144 mm	1,867.10 m
Collar Pipe Total:	1,943.65 m
Stick Up:	4.12 m
Tool Above:	15.47 m
Interval Tested:	10.00 m
Bottom Hole Choke Size:	25.40 mm

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 8

Recorder# 14878

Depth: 1,958.00 m
Location: Outside

Recorder Type: K-3
Capacity: 41,400 kPag

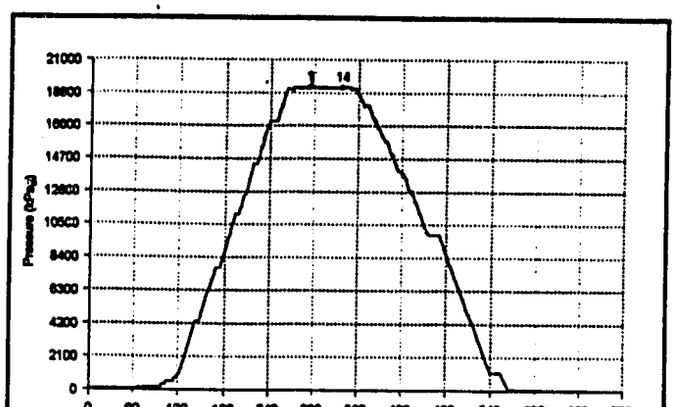


		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	19347	
14	Final Hydrostatic	19347	

Recorder# 70300

Depth: 1,958.00 m
Temperature: 63.1 C
Location: Outside

Recorder Type: SPAR
Capacity: 68,900 kPag



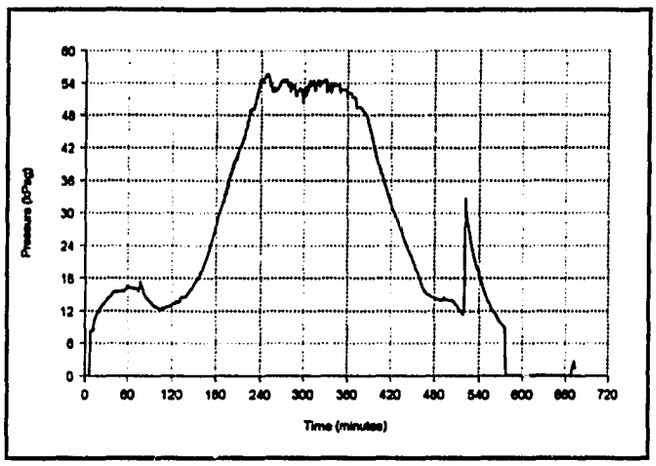
		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	19219	
14	Final Hydrostatic	19198	

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 8

Recorder# 70390

Depth: 1,941.70 m
Temperature: 61.8 C
Location: Inside

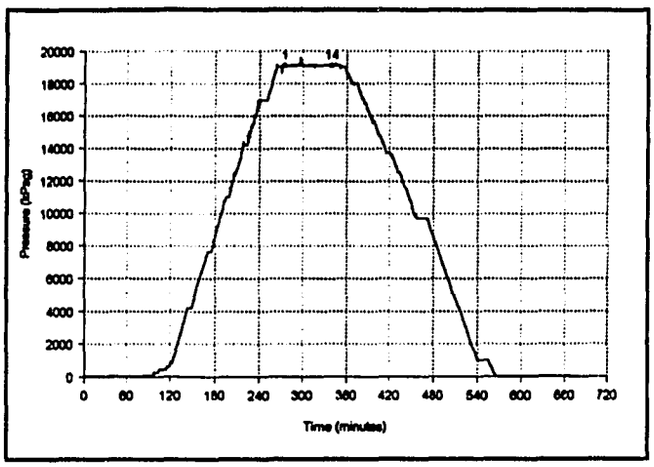
Recorder Type: SPAR
Capacity: 34,500 kPag
Comments: Recovery recorder



Recorder# 71005

Depth: 1,946.64 m
Temperature: 62.2 C
Location: Inside

Recorder Type: SPAR
Capacity: 68,900 kPag
Comments: Above interval



		Pressure (kPag)	*Time (min)*
1	Initial Hydrostatic	19080	
14	Final Hydrostatic	19068	

N.E.B. COPY

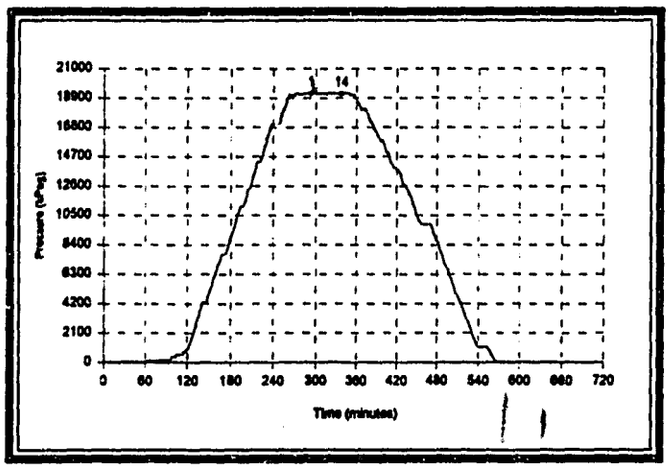
PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST# 8

BAKER HUGHES

Baker Oil Tools

Formation: TIGHT HOLE
Interval - from: 1955.00 **to:** 1965.00 m

Recorder# 70300 at 1958.00 m



Maximum Btm Hole Temperature @ FSI: 63.1 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	19219		
14	Final Hydrostatic	19198		

Liquid Recovery of 0 m

Test Date: 1999-03-21
Test Type: INFLATE STRADDLE
Tester Name: MARC SAMPIETRO
Drill Pipe O.D.: 144.00 mm
Drill Collar I.D.: 61.00 mm
Drill Collar Length: 76.55 m
Hole Size: 222.00 mm

Blow Description:

Misrun.

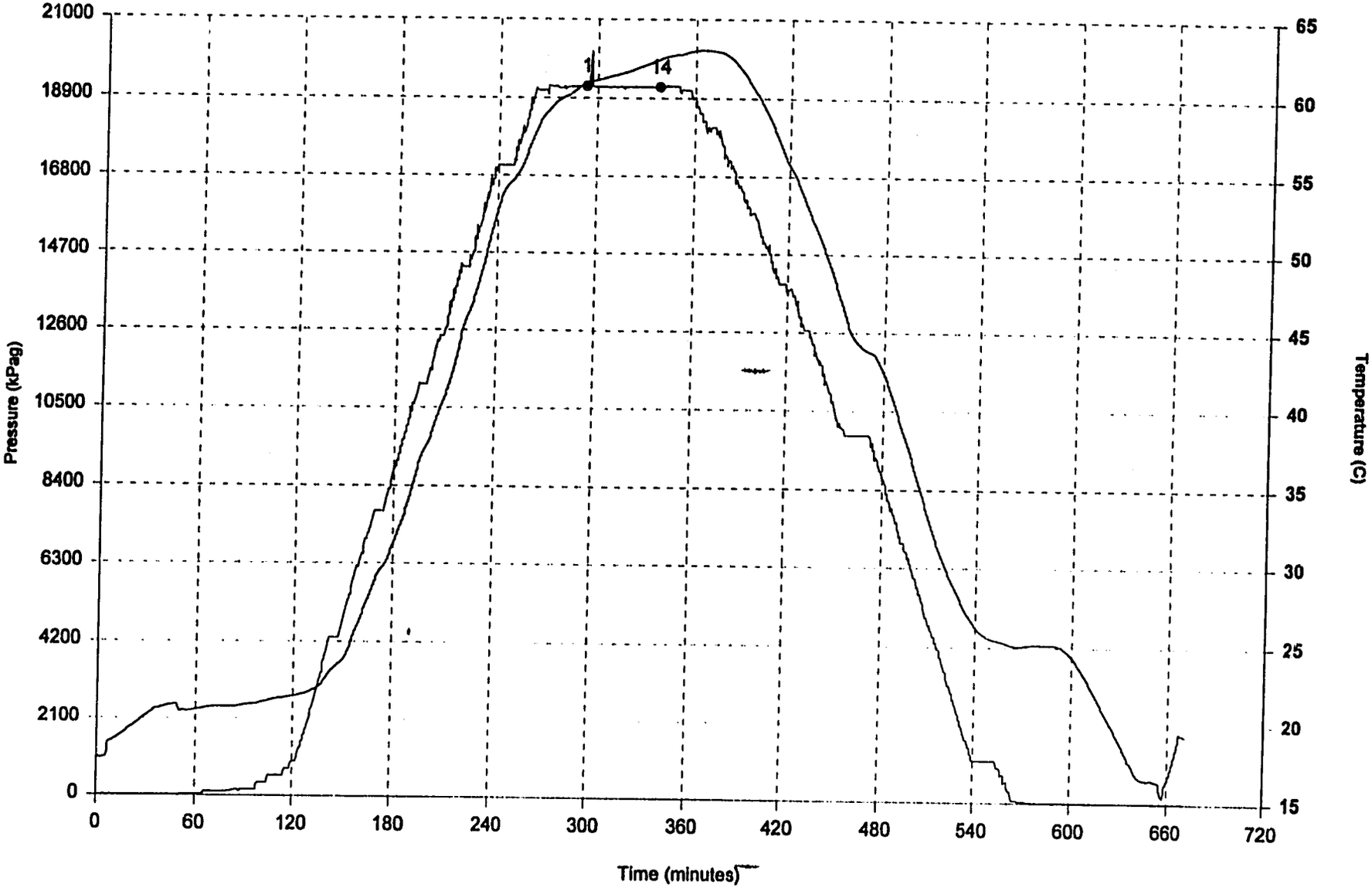
Remarks:

Misrun - unable to obtain a packer seat. Ruptured the bottom element.

BAKER OIL TOOLS DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 8
Recorder: 70300

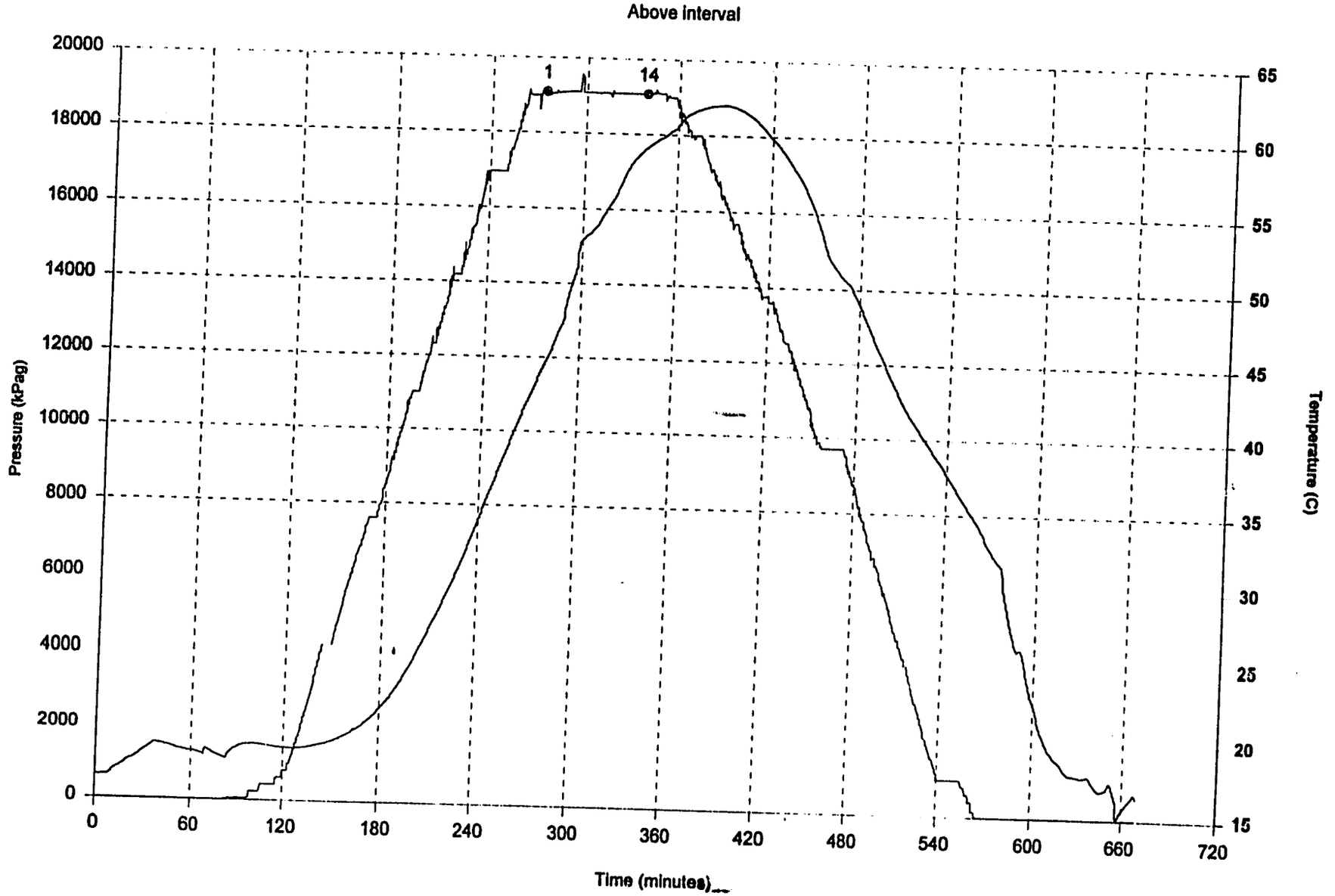
Pressure (kPag) at Critical Points:
1: 19219
14: 19198



BAKER OIL TOOLS DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 8
Recorder: 71005

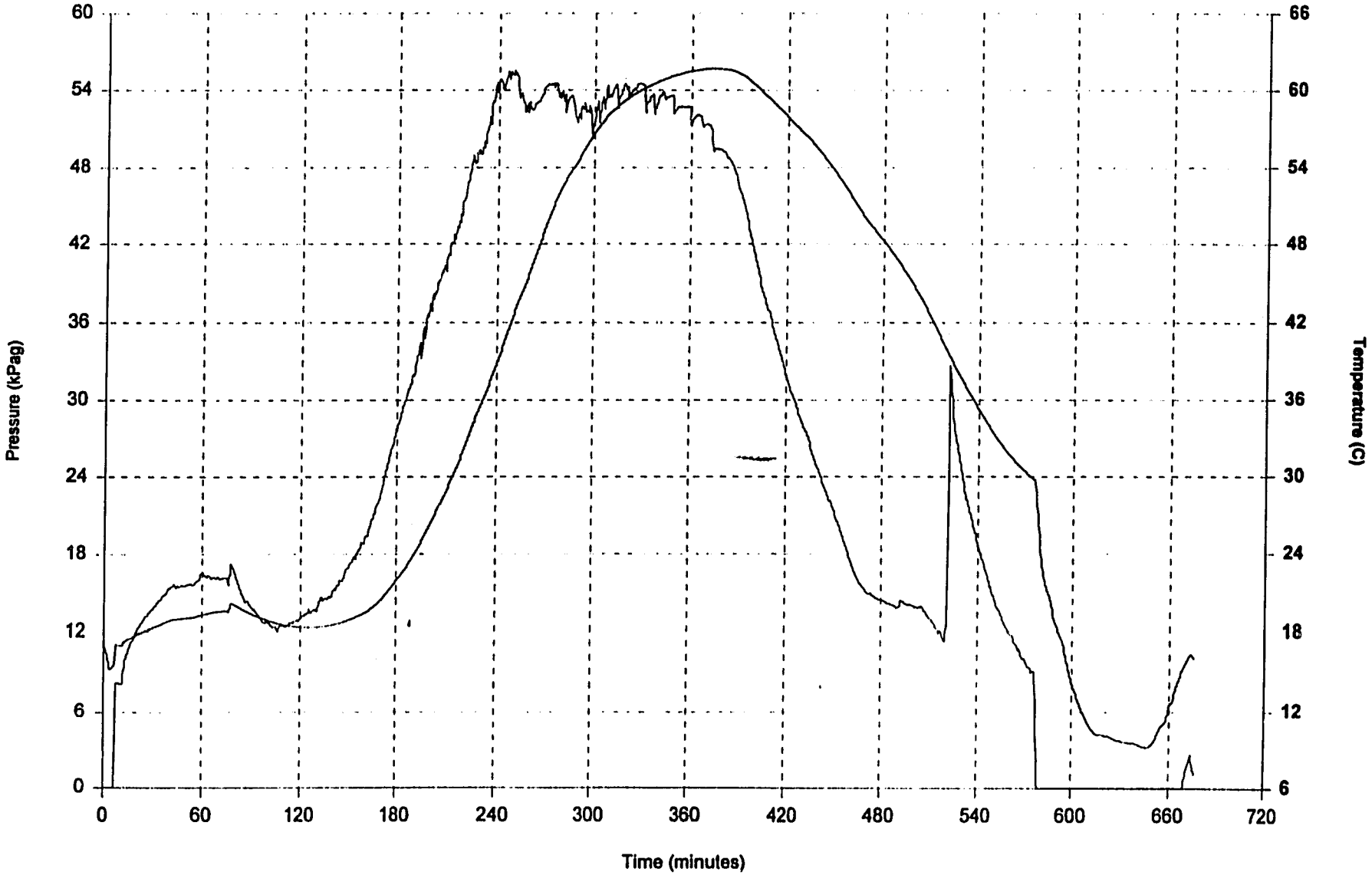
Pressure (kPag) at Critical Points:
1: 19080
14: 19068



BAKER OIL TOOLS DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 8
Recorder: 70390

Recovery recorder



NEB COPY

BAKER HUGHES

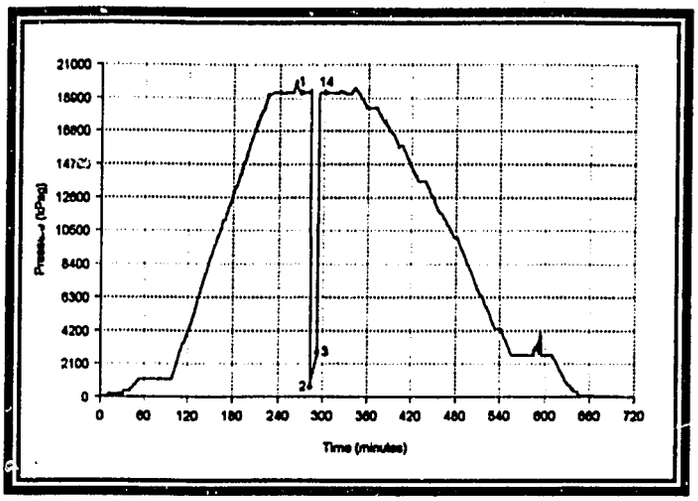
PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 9

Baker Oil Tools

Formation: Tight Hole
Interval - from: 1,955.00 **to:** 1,965.00 meters

Test Date: 1999-03-22
Test Type : Inflate Straddle

Recorder# 70300 at 1,958.00 meters



Max Btm Hole Temperature @ FSI: 67.7 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	19218		
2	Start of 1st Flow	581		
3	End of 1st Flow	2811	10.0	
14	Final Hydrostatic	19207		

Liquid Recovery 265.00 meters

Salinity : 11 000 g/m3

Recovery	*Description*
100.00 m	INVERT
50.00 m	SALT WATER CUT INVERT
115.00 m	SALT WATER

Blow Description:

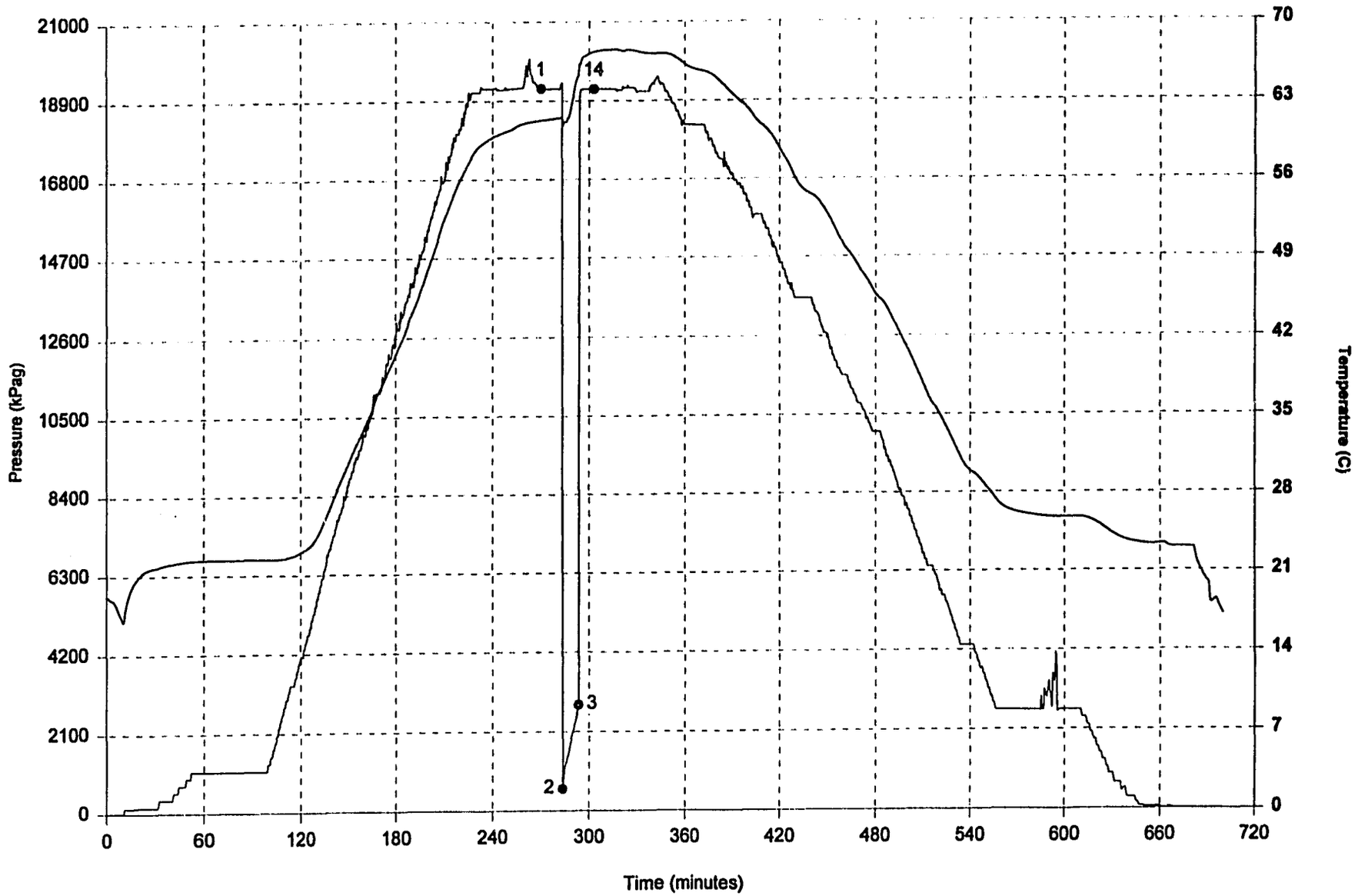
PREFLOW: Wek air blow throughout. No gas to surface.

Remarks:

Misrun - lost the packer seat 10 minutes into the preflow. Unable to regain the seat. Ruptured the top element.

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 9
Recorder: 70300

Pressure (kPag) at Critical Points:
1: 19218 14: 19207
2: 581
3: 2811

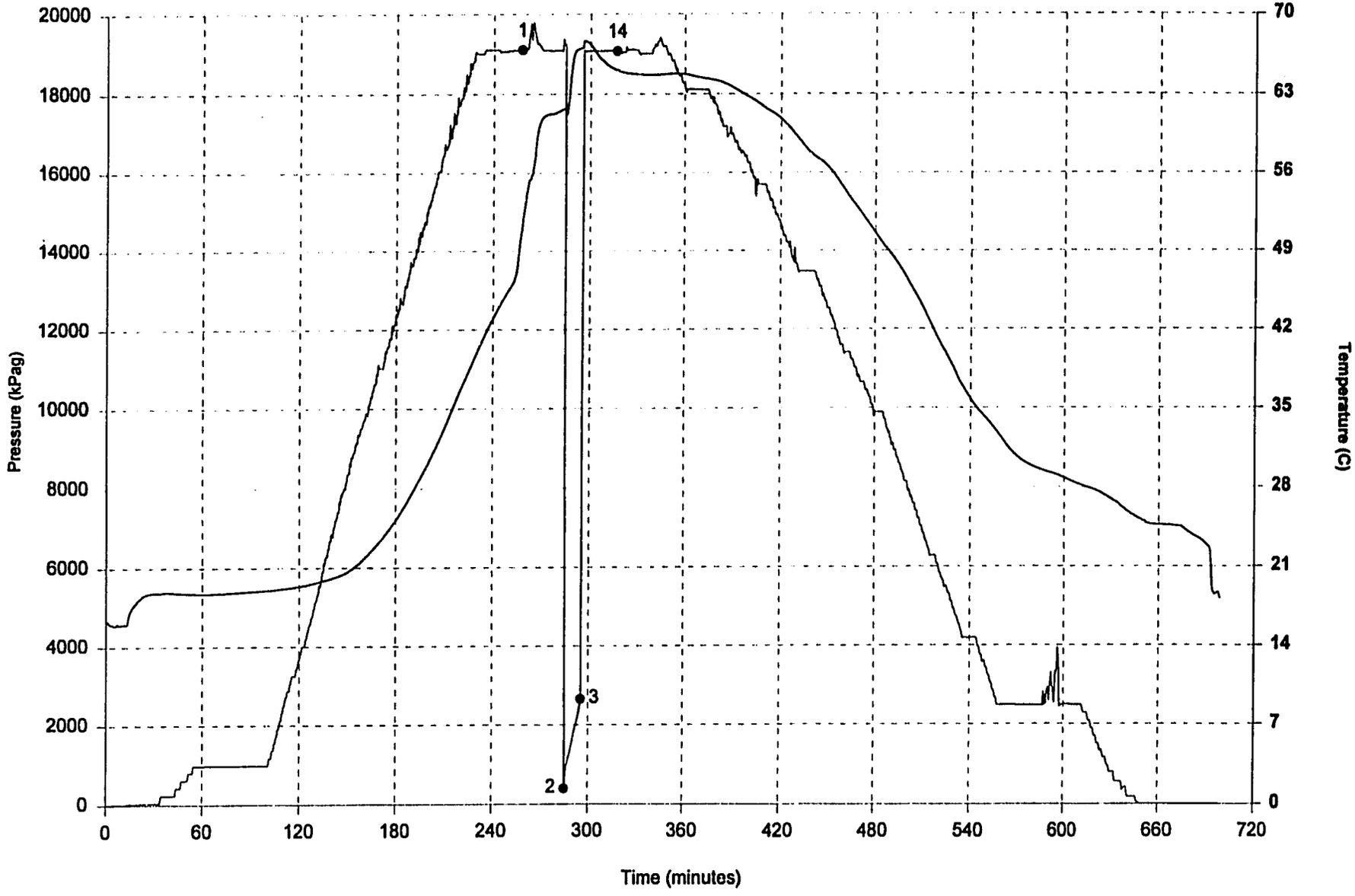


BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 9
Recorder: 71005

Pressure (kPag) at Critical Points:
1: 19109 14: 19071
2: 390
3: 2651

Above interval

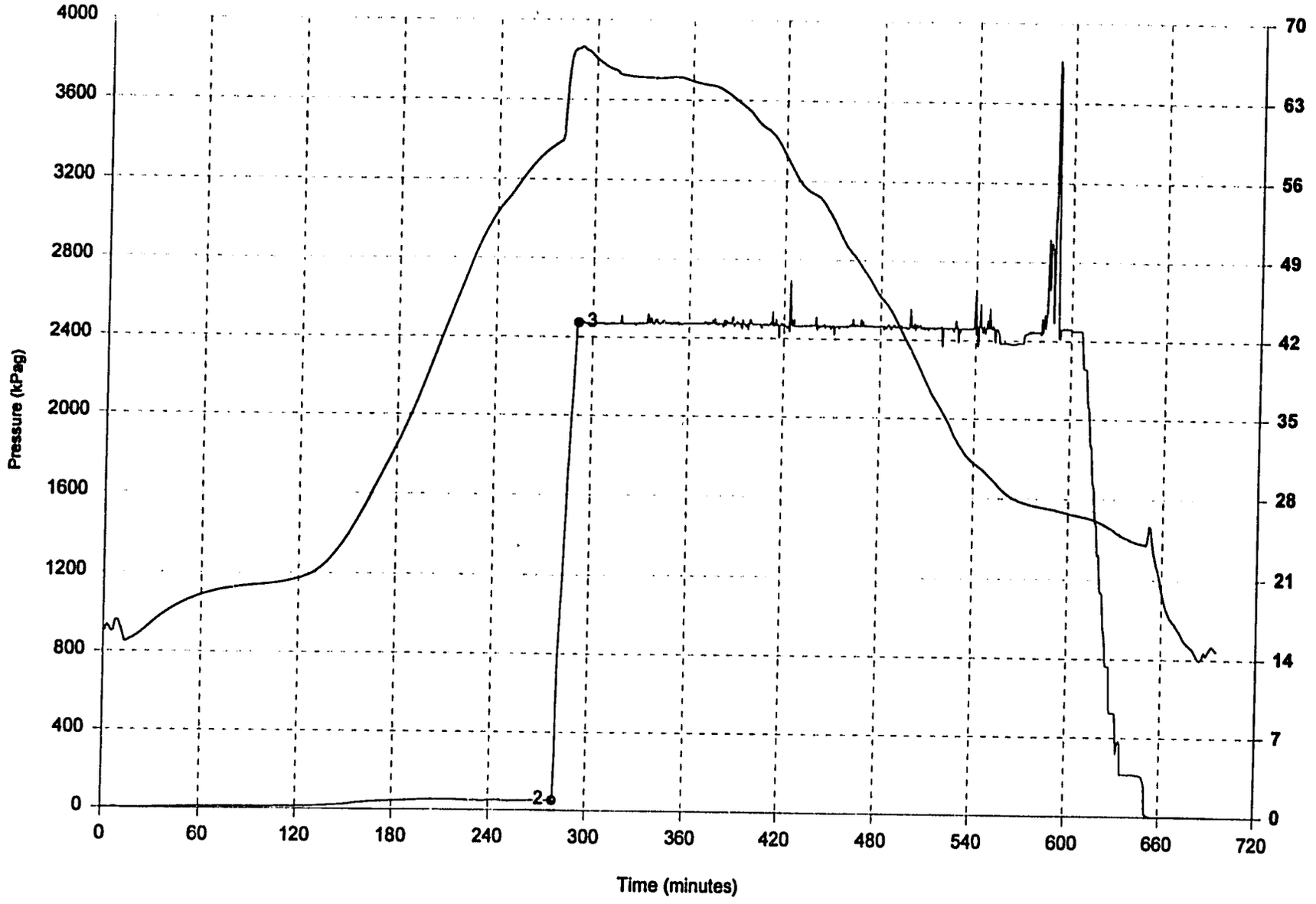


BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST #: 9
Recorder: 70390

Pressure (kPag) at Critical Points:
2: 50
3: 2473

Recovery recorder



BAKER OIL TOOLS / LYNES DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 9

General Information:

Operator: Paramount Resources Ltd.
4000, 350 - 7th Avenue S.W.
Calgary Alberta T2P 3W5

Tester: Sampietro M
Ticket#: 807945
Reverse Circulated? Y
KB Elevation: 522.40 meters
Ground Elevat'n: 517.40 meters
Total Depth: 2,046.00 meters

Mud Data:

Weight: 970 kg/m3
Type: Invert
Viscosity: 50 s/l
Filter Cake: 1.0 mm

Hole Data:

Drilled Hole Size: 222 mm
Calipered Hole Size: 250 mm
Hole Condition at Test Time: Good
Conditioned prior to this test? N

Recorder Summary:

Recorder#	*Type*	*Position*	*Capacity*	*Units*	*Depth*	*Comments*
70390	SPAR	Inside	34500	kPag	1,941.70	Recovery recorder
71005	SPAR	Inside	68900	kPag	1,946.64	Above interval
14878	K-3	Outside	41400	kPag	1,958.00	
70300	SPAR	Outside	68900	kPag	1,958.00	

Distributions:

Reports Sent To: Wayne Tomm
Fluid Samples - no of: 6 Sent To: AGAT

Bottom Hole Sampler#	*Sent To*
152	AGAT
Yes	AGAT

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST# 9

Tool Sequence:



Description	*Length*
Pump Out Sub	0.33 m
Cross Over Sub	0.30 m
Pump Out Sub	0.33 m
Recorder Carrier	1.38 m
Hydraulic Tool	1.50 m
Bottom Hole Sampler	1.03 m
Bottom Hole Sampler	1.03 m
Recorder Carrier	1.38 m
Hydraulic Jars	2.22 m
Safety Joint	0.65 m
Inflate Pump	2.38 m
Screen	1.16 m
Top Inflate Packer	1.78 m
Packer Stick Down	0.82 m
Port Sub	0.31 m
Recorder Carrier	2.04 m
Blank Off Sub	0.30 m
Spacing	6.10 m
Packer Stick Up	0.42 m
Bottom Inflate Packer	1.90 m
Belly Spring	2.31 m

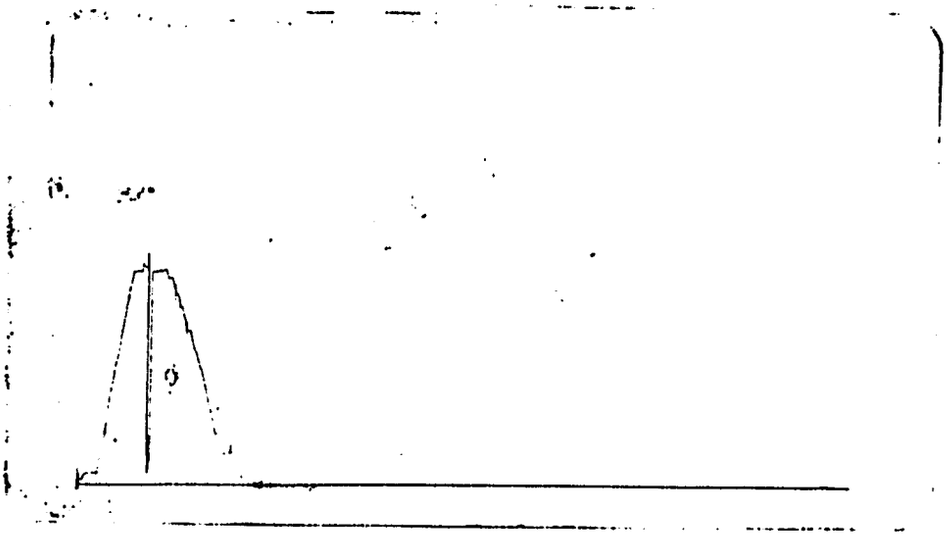
Tool String Length:	29.67 m
Drill Collar I.D.: 61 mm	76.55 m
Drill Pipe O.D.: 144 mm	1,867.10 m
Collar Pipe Total:	1,943.65 m
Stick Up:	4.12 m
Tool Above:	15.47 m
Interval Tested:	10.00 m
Bottom Hole Choke Size:	25.40 mm

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST 9

Recorder# 14878

Depth 1,958.00 m
Location: Outside

Recorder Type: K-3
Capacity: 41,400 kPag

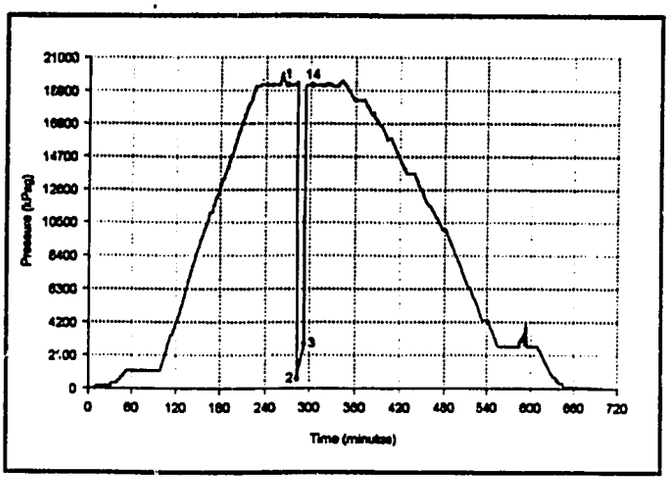


		Pressure (kPag)	*Time (min)*
1	Initial Hydrostatic	19088	
2	Start of 1st Flow	846	
3	End of 1st Flow	2905	10.0
14	Final Hydrostatic	19088	

Recorder# 70300

Depth 1,958.00 m
Temperature: 67.7 C
Location: Outside

Recorder Type: SPAR
Capacity: 68,900 kPag



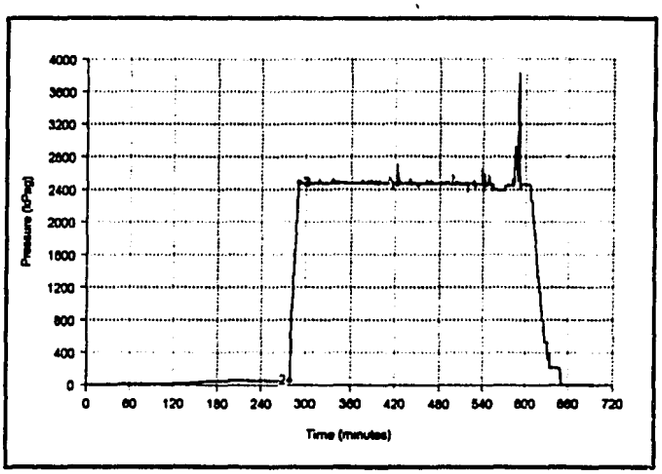
		Pressure (kPag)	*Time (min)*
1	Initial Hydrostatic	19218	
2	Start of 1st Flow	581	
3	End of 1st Flow	2811	10.0
14	Final Hydrostatic	19207	

PARAMOUNT ET AL LIARD A-01
00/ 60.100 / 123.150 /0
DST 9

Recorder# 70390

Depth 1,941.70 m
Temperature: 64.7 C
Location: Inside

Recorder Type: SPAR
Capacity: 34,500 kPag
Comments Recovery recorder

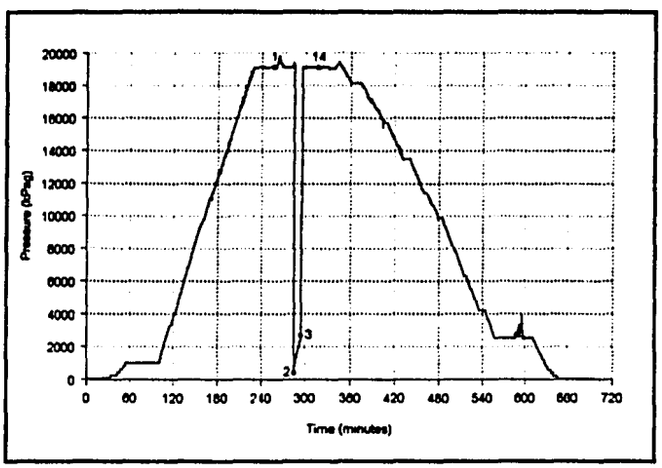


		Pressure (kPag)	*Time (min)*
2	Start of 1st Flow	50	
3	End of 1st Flow	2473	10.0

Recorder# 71005

Depth 1,946.64 m
Temperature: 64.7 C
Location: Inside

Recorder Type: SPAR
Capacity: 68,900 kPag
Comments Above interval



		Pressure (kPag)	*Time (min)*
1	Initial Hydrostatic	19109	
2	Start of 1st Flow	390	
3	End of 1st Flow	2651	10.0
14	Final Hydrostatic	19071	

N.E.B. COPY

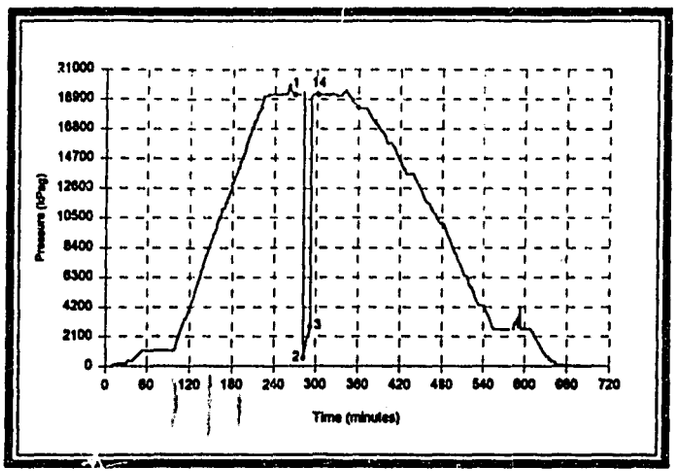
PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST# 9

BAKER HUGHES

Baker Oil Tools

Formation: TIGHT HOLE
Interval - from: 1955.00 **to:** 1965.00 m

Recorder# 70300 at 1958.00 m



Maximum Btm Hole Temperature @ FSI: 67.7 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	19218		
2	Start of 1st Flow	581		
3	End of 1st Flow	2811	10.0	
14	Final Hydrostatic	19207		

Liquid Recovery of 265.00 m

Test was reversed out.

Recovery	*Description*	*Salinity*
100.00 m	INVERT	
50.00 m	SALT WATER CUT INVERT	11000
115.00 m	SALT WATER	

Test Date: 1999-03-22
Test Type: INFLATE STRADDLE
Tester Name: MARC SAMPIETRO
Drill Pipe O.D.: 144.00 mm
Drill Collar I.D.: 61.00 mm
Drill Collar Length: 76.55 m
Hole Size: 222.00 mm

Blow Description:

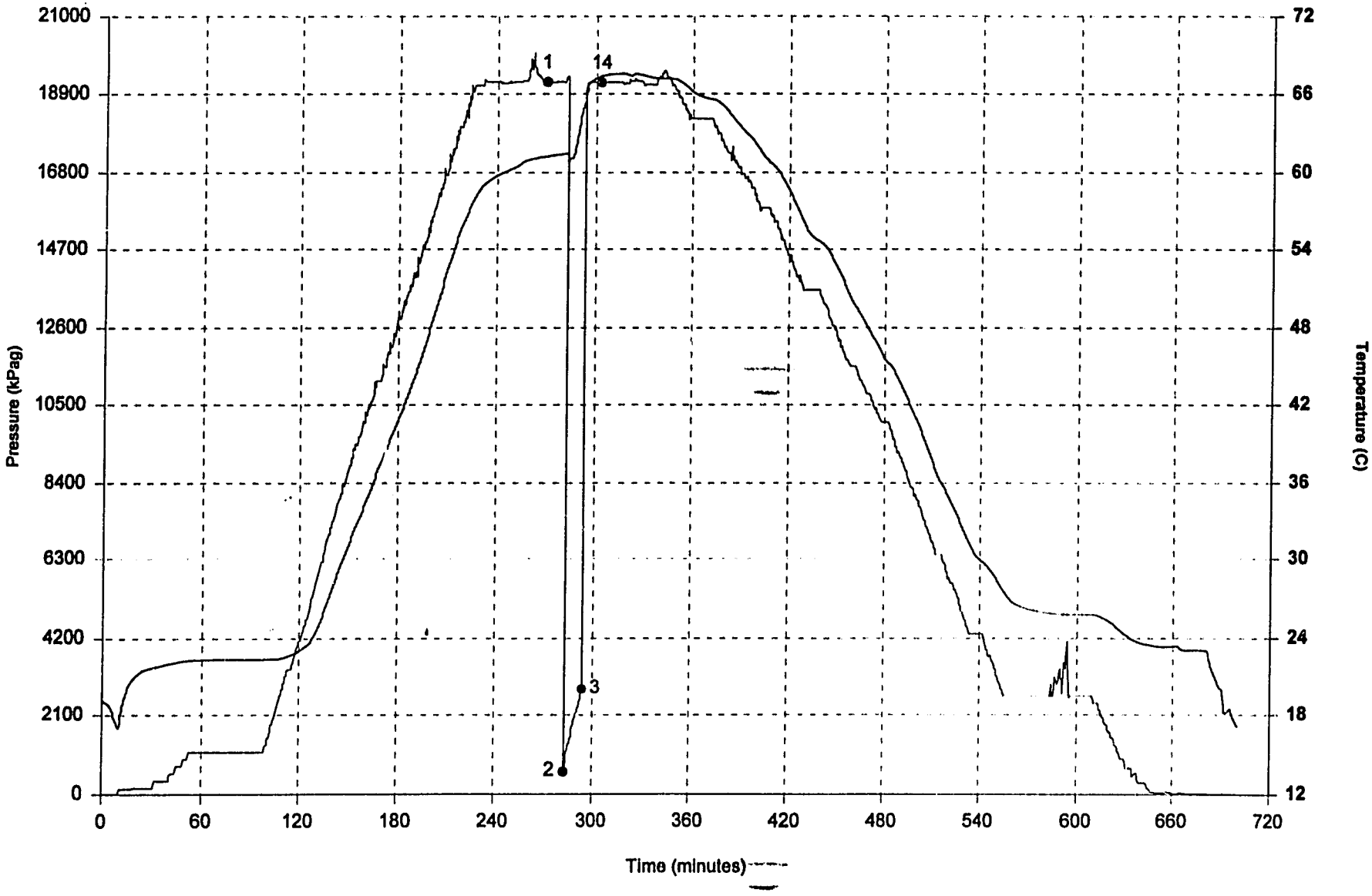
Wek air blow throughout. No gas to surface.

Remarks:

Misrun - lost the packer seat 10 minutes into the preflow. Unable to regain the seat. Ruptured the top element.

PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 9
Recorder: 70300

Pressure (kPag) at Critical Points:
1: 19218 14: 19207
2: 581
3: 2811



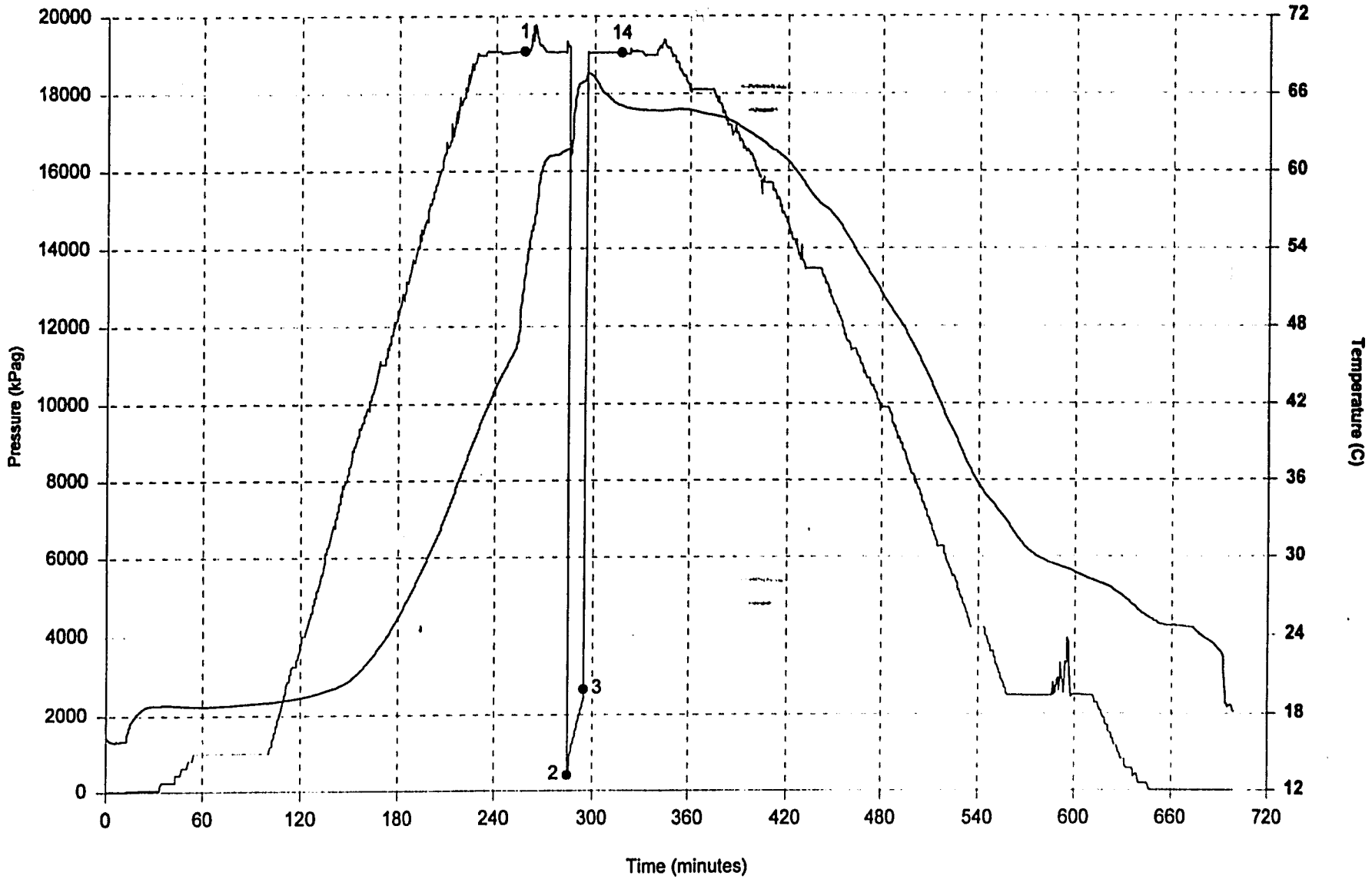
BAKER OIL TOOLS DRILL STEM TESTING

BAKER OIL TOOLS DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 9
Recorder: 71005

Pressure (kPag) at Critical Points:
1: 19109 14: 19071
2: 390
3: 2651

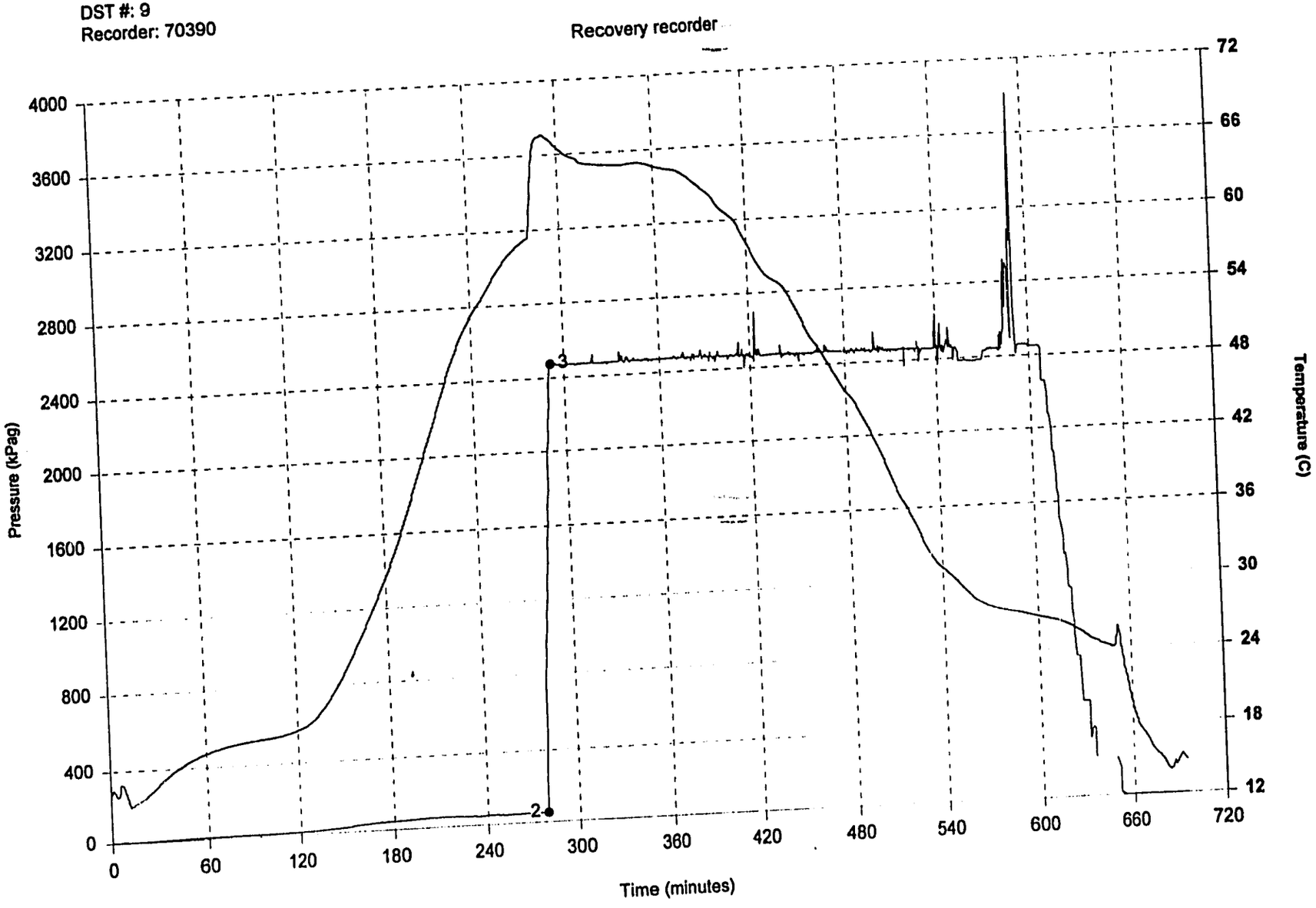
Above Interval



BAKER OIL TOOLS DRILL STEM TESTING

PARAMOUNT ET AL LIARD A-01
60.1/123.15
DST #: 9
Recorder: 70390

Pressure (kPag) at Critical Points:
2: 50
3: 2473



SURVEY PLAN

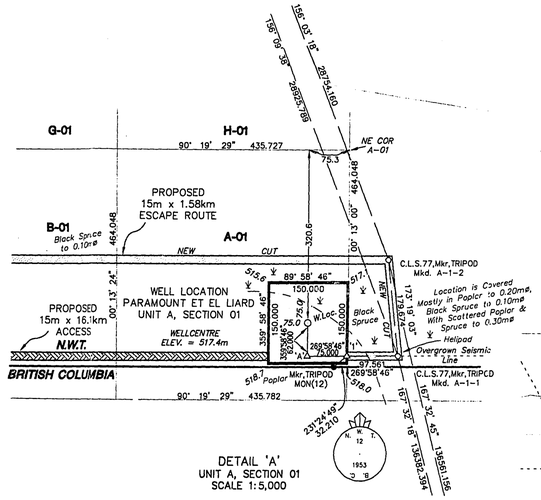
OVERSIZED

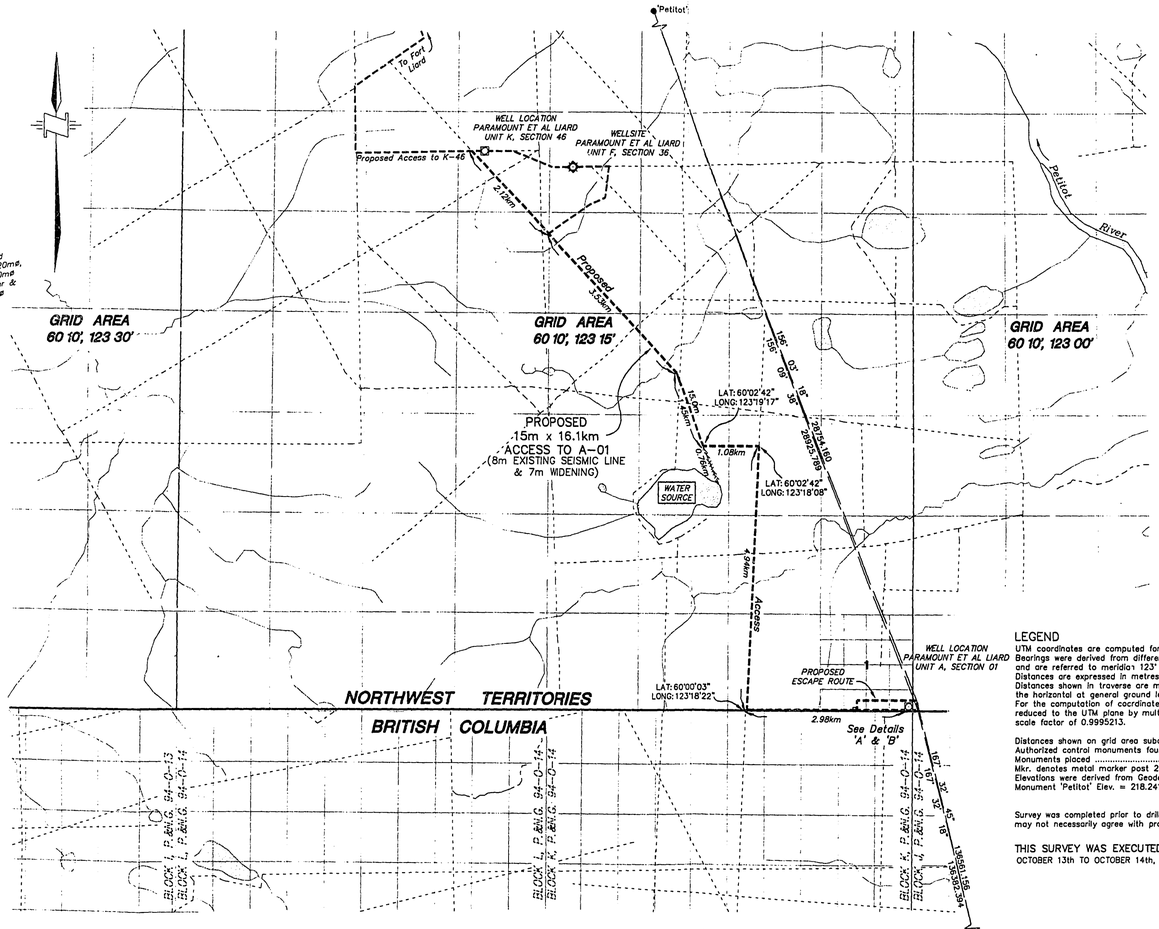
DOCUMENT

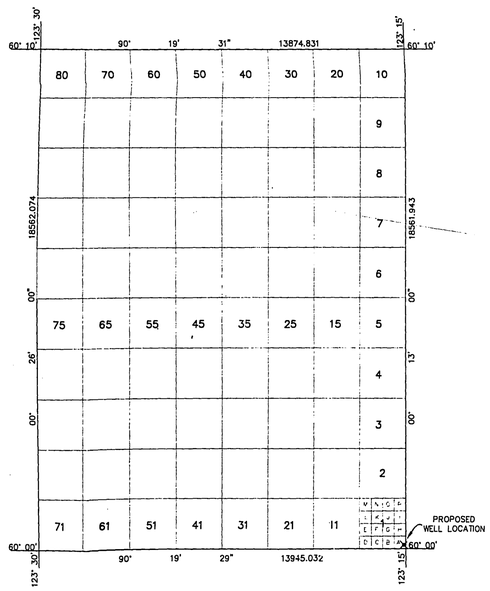
FILMED

ON

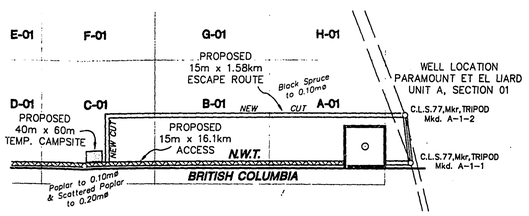
35mm







GRID AREA 60'10', 123'15'
SCALE 1:100,000



DETAIL 'B'
SCALE 1:10,000

AREAS REQUIRED:

WELLSITE:	150mx150m = 2.25 ha.
TEMP. CAMPSITE:	40mx60m = 0.24 ha.
ESCAPE ROUTE:	15mx1.58km = 2.37 ha.
ACCESS:	15mx16.1km = 24.2 ha.
TOTAL:	29.06 ha.

REV.No.	DESCRIPTION	DATE

McElhanney ASSOCIATES
PROFESSIONAL LAND SURVEYORS
10014 - 97th Ave., Suite 202
Fort St. John, British Columbia
Phone:(250)787-0356, Fax:(250)787-0310

DATE : 98/10/16 JOB No.: 3111-06783WS CW BRC

PLAN AND FIELD NOTES
OF SURVEY OF
PROPOSED EXPLORATORY WELL
PARAMOUNT ET AL FORT LIARD
IN UNIT A, SECTION 01
GRID AREA 60° 10' , 123° 15'
NORTHWEST TERRITORIES
CANADA OIL AND GAS LAND REGULATIONS

SCALE 1:50,000
1km 500m 0m 1km 2km 3km 4km

SURVEYED FOR
PARAMOUNT RESOURCES LTD.
BY : W.V. JOHNSON, CLS
OCTOBER, 1998.

LEGEND
UTM coordinates are computed for Zone 10, central meridian 123° W.
Bearings were derived from differentially corrected GPS Observations and are referred to meridian 123° W.
Distances are expressed in metres and decimals thereof.
Distances shown in traverse are measured distances reduced to the horizontal at general ground level.
For the computation of coordinates measured distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.9995213.

Distances shown on grid area subdivisions are UTM plane.
Authorized control monuments found ..... ●
Monuments placed ..... ○
Mkr. denotes metal marker post 2.0m long placed 0.30m N.
Elevations were derived from Geodetic Survey of Canada Monument 'Petitot' Elev. = 218.241m

Survey was completed prior to drilling; therefore well as drilled may not necessarily agree with proposed location.

THIS SURVEY WAS EXECUTED DURING THE PERIOD OCTOBER 13th TO OCTOBER 14th, 1998. BY W.V. JOHNSON, CLS

All coordinates shown are on 1927 North American Datum.
Wellsite control established using differentially corrected GPS observations.
Final coordinate values for control were transformed from NAD83 datum to NAD27 datum using National Transformation Version 2 program.
Geodetic Survey of Canada published coordinate values for monument 'Petitot' were held fixed. Adjusted values for Fort Nelson ACP GCM#602904 and comparison to Government of British Columbia published coordinates are shown below.

GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)				
Station	Latitude	Longitude	Northings	Eastings
CONTROL MONUMENTS				
Petitot(Publ. & Fixed)	60°14'15.436"	123°27'39.795"	6677758.134	474467.253
Fort Nelson ACP(Adj.)	58°48'19.494"	122°43'49.914"	6518207.419	515569.399
Fort Nelson ACP(Publ.)	58°48'19.493"	122°43'49.968"	6518207.388	515568.539
GRID AREA				
NE	60° 10' 00"	123° 15' 00"	6669792.783	486125.259
NW	60° 10' 00"	123° 30' 00"	6669871.559	472250.651
SE	60° 00' 00"	123° 15' 00"	6651230.973	486055.060
SW	60° 00' 00"	123° 30' 00"	6651310.016	472110.252
A-01, NE	60°00'15.000"	123°15'00.000"	6651695.018	486056.815
A-01, NW	60°00'15.026"	123°15'28.125"	6651697.488	485621.095
A-01, SW	60°00'00.026"	123°15'28.125"	6651233.443	485619.285
A-01, SE	60°00'00.000"	123°15'00.000"	6651230.973	486055.060
TRAVERSE STATIONS				
A-01-1	60°00'02.661"	123°14'53.714"	6651312.924	486152.771
A-01-2	60°00'08.424"	123°14'55.106"	6651491.292	486131.873
TH 'A'	60°00'02.638"	123°15'04.845"	6651312.862	485980.293
TH '1'	60°00'02.648"	123°15'00.007"	6651312.889	486055.257
BC-NWT MON#12	60°00'01.996"	123°15'01.627"	6651292.810	486030.091
PROPOSED WELL				
A-01	60°00'04.641"	123°15'04.862"	6651374.833	485980.270

I, W.V. Johnson, of the City of Fort St. John, British Columbia, Canada Lands Surveyor, make oath and say that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

W.V. Johnson, CLS

Sworn before me at Fort St. John, this 18th day of October, 1998.

R.O. Blackall, CLS

PARAMOUNT RESOURCES LTD.

B. Vallevet

WITNESS

Oct 20/98
DATE

RESISTIVITY/ CONDUCTIVITY

NEB COPY

BAKER HUGHES

HIGH DEFINITION INDUCTION LOG
GAMMA RAY LOG

Baker Atlas

FILE NO:	COMPANY	PARAMOUNT RESOURCES LTD.
API NO:	WELL	PARAMOUNT ET AL LIARD A-81
	FIELD	UNDEFINED
Ver 3.19	PROVINCE	NORTHWEST TERRITORIES
	LOCATION:	W1D=1850 Rdi 68DEG 18' 12SDEG 15'

OTHER SERVICES
ZDL-CN-DF
MAC-GR-C.
CAL

TUD,LOGGTI

PERMANENT DATUM	G.L.	ELEVATION 517.2 M
LOG MEASURED FROM	K.B.	5.5 M ABOVE P.D.
DRILL. MEAS. FROM	KELLY BUSHING	

ELEVATIons
KB 522.7 M
DF
GL 517.2 M

DATE		11-MAR-1999	
RUN	TRIP	1	1
SERVICE ORDER		97251#	
DEPTH DRILLER		1935.0 M	
DEPTH LOGGER		1936.5 M	
BOTTOM LOGGED INTERVAL		1928.1 M	
TOP LOGGED INTERVAL		582.6 M	
CASING-DRILLER		339.7 MM @583.0 M	#
CASING LOGGER		582.6 M	
BIT SIZE		222 MM	
TYPE OF FLUID IN HOLE		INVERT	
DENSITY	VISCOSITY	975 G/C3	47 S
PH	FLUIDLOSS	-	-
SOURCE OF SAMPLE		FLOWLINE	
RM AT MEAS. TEMP.		-	@- #
RMF AT MEAS. TEMP.		-	@- #
RMC AT MEAS. TEMP.		-	@- #
SOURCE OF RMF	RMC	-	- -
RM AT BHT		-	@- #
TIME SINCE CIRCULATION		5 HRS	
MAX. RECORDED TEMP.		51.2 DEGC	
EQUIP. NO.	LOCATION	#1504	D.P.
RECORDED BY		M.LESAGE	
WITNESSED BY		B.CLATTENBURG	

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST OTHER MEASUREMENTS. ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR EXPOSURES AND/OR TESTS, AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

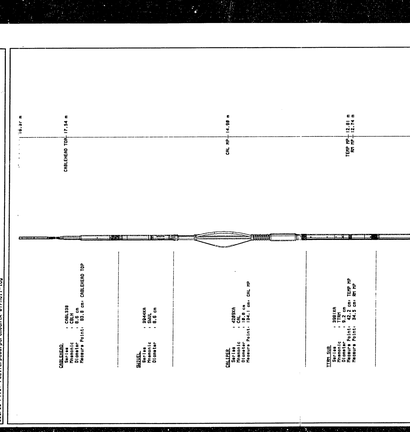
RUN 1 TRIP 1 :
- Tim stopped circulation @ 1400 hrs, 11-Mar-1999, 20:00
- Will advise end presentations as per customers request.
- Tool was centralized.
- No sp presented due to invert mud system.

c:\runs_pics\r_one1\

RUN	TRIP	TOOL STRING	SERIAL NO.	EQUIPMENT DATA	POSITION
1	1	HDIL	1504		CENTRALIZER
		ZDL	1504		CENTRALIZER
		CNS	1504		CENTRALIZER
		GR	1504		CENTRALIZER
		TYPE	1504		BOW SPRING

INSTRUMENT CONFIGURATION

Depth Plot: /data/paramount/81/main.prf



MAIN PASS - UPPER PRESENTATION

Run 3.1 Nov 16, 1999 Elapsed 2.27 Start: 08:13 Thu Mar 11 16:08:16 1999
Plot: /data/paramount/81/main.prf

PARAMETER AND FILTER SUMMARY REPORT

File: /data/paramount/81/main.prf
Top Depth= 582.60 m Bottom Depth= 1935.96 m

MEASUREMENT TYPE	PARAMETER	SYMMETRIC FILTER VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
GR	FILTER (1)	median (1)		---	---
HDIL	RIDLE FIT RES	OFF		---	---
CALIPER	FILTER (2)	11pnt (2)		---	---
	FILTER (3)	11pnt (2)		---	---
TENSION	FILTER (1)	median (1)		---	---

MEASUREMENT TYPE	BOREHOLE & CEMENT PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (HAND)	USE CALIPER	mm	---	---
BOREHOLE CORR DIAMETER	FIXED DIAMETER (HAND)	222.MM	mm	---	---
MUD TYPE	MUD SAMPLE TYPE	OIL BASED MUD	#MC	---	---
MUD VALUES	MUD SAMPLE TEMP	15.6	#MC	---	---
	MUD RESISTIVITY	0.8	#MC	---	---
	MUD SAMPLE TEMP	21.0	#MC	---	---
	MUD FILTRATE RESISTIVITY	2.1	#MC	---	---

MEASUREMENT TYPE	HDIL PROCESSING PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
HDIL PROCESSING	TEMP CORRECTION	Is in STANDOFF		---	---
HDIL TEMPERATURE CORRECTION	TEMP CORR SOURCE	USE TEMP		---	---

CURVE	OFFSET (m)	CURVE	CURVE MEASURE POINT OFFSET OFFSET (m)	CURVE	OFFSET (m)
GR	0.00	HDIL	0.00	SAS	0.00
HDIL	0.00	HDIL	0.00		
SAS	0.00	HDIL	0.00		
TENSION	0.00	HDIL	0.00		

Presentation r_/data/paramount/81/main.prf
Description : paramount/main/hdil/zdl/cn/gr
Created : paramount/main/hdil/zdl/cn/gr
Plot : paramount/main/hdil/zdl/cn/gr
Plot : 1:240 Inches 5.00 Inches
Out : 4FAMI

Schlumberger
Data Services
Version: 5A_0C1
Date: 16-Nov-99
Time: 13:08:16
User: ATLAS
Wellsite System: MAXIS 500
Program: GEOLOG 3.50.0
Database File: /data/paramount/81/main.dfd
Dataset Name: MAIN PASS
Dataset Type: TIME
Index Type: TIME
Start Time: 0.00 s
Stop Time: 2.27 h
Time Step: 1.00 s
Primary Axis: TIME
Primary Axis Units: s
Wellsite Data Sampling: 1.00 s
Tool Zero Check: NO
Drift Correction: NO
Max Hole Deviation: 0.0 deg
Bottom Hole Deviation: 0.0 deg
Tension Cable Weight: 0.00 kg/m
Cable Diameter: 0.00 mm
Cable Speed: 0.00 m/min
Cable Length: 0.00 m
Measure Point Offset: 0.00 m
Reference Point: RKB
Reference Point Offset: 0.00 m
Permanent Datum: MSL
Permanent Datum Elevation: 0.00 m
Elevation of Kelly Bushing: 522.70 m
Elevation of Ground Level: 517.20 m
Above Permanent Datum
Magnetic Declination: 0.00 deg
Coordinate 1 Name: Latitude
Coordinate 1 Value: 0.00 deg
Coordinate 2 Name: Longitude
Coordinate 2 Value: 0.00 deg
Coordinate 3 Name: UTM Zone
Coordinate 3 Value: 0.00
Coordinate System: UTM
Remarks: Run 1 Trip 1 : Tim stopped circulation @ 1400 hrs, 11-Mar-1999, 20:00 Will advise end presentations as per customers request. Tool was centralized. No sp presented due to invert mud system.

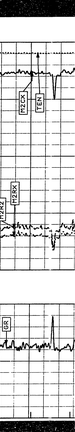
GR BACKUP
GAMMA RAY (gr) 150
(gAPI)
0

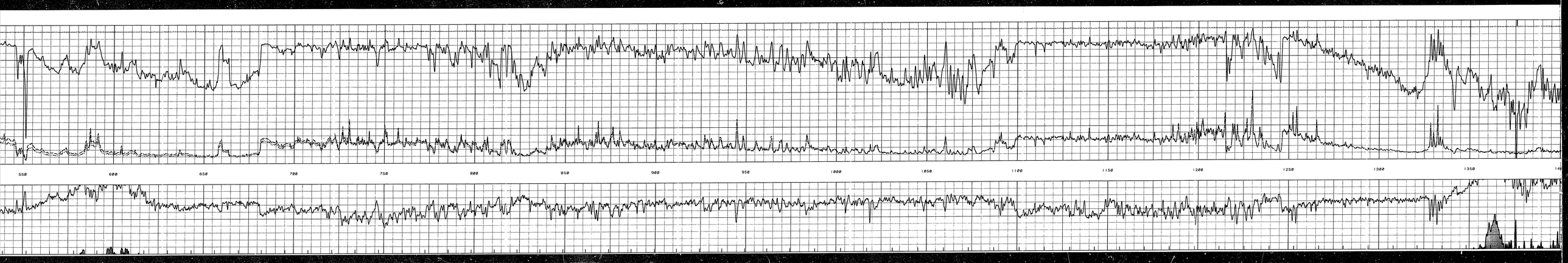
METERS

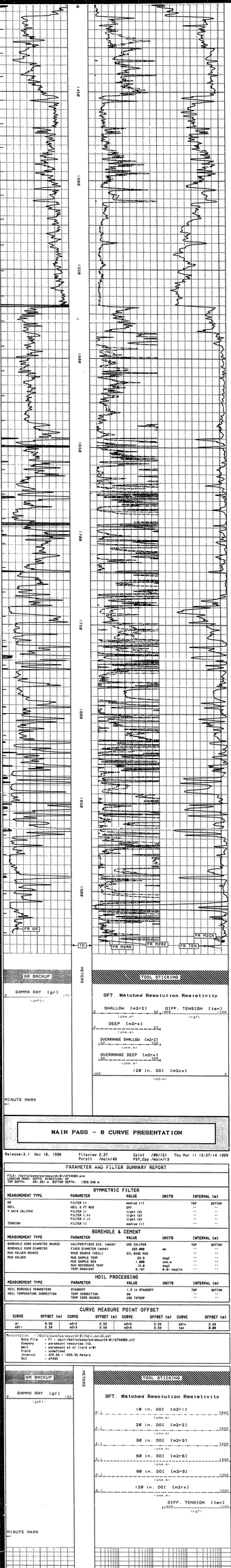
HIGH DEFINITION INDUCTION LOG
2FT. Matched Resolution Resistivity
SHALLOW (ns2r2) DIFF. TENSION (tens)
(ohm.m) 0.2 20 (gAPI) 0 1000
DEEP (ed2r2)
(ohm.m) 0.2 20
DIVERGENCE SHALLOW (sd2r2)
(ohm.m) 0.2 20
DIVERGENCE DEEP (ed2r2)
(ohm.m) 0.2 20
200 in. DOI (ed2r2)
(ohm.m) 0.2 20

500

MINUTE MARK




550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350



MAIN PASS - 6 CURVE PRESENTATION

Release:3.1 Nov 18, 1998 | Fileview 2.27 | Color /09/12) | Thu Mar 11 15:57:14 1999
Porpl /mein/AS | Pdf.cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/pass/por-smouch-8/pf4d02.pre
Well Name: pf4d02 API#: unspecified
TOP DEPTH: 497.061 m BOTTOM DEPTH: 1933.348 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
GR	FILTER ID	median (3)		**	**
HDIL	HDIL # PT REQ	OFF		**	**
Y AXIS CALIPER	FILTER ID	light (2)		**	**
	FILTER C.1D	light (2)		**	**
	FILTER C.1D	light (2)		**	**
TENSION	FILTER ID	median (3)		**	**

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (mbha)	USE CALIPER		**	**
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbha)	222.000	mm	**	**
MUD VALUES SOURCE	MUD SOURCE (MUD)	GEL BASE MUD		**	**
MUD VALUES	MUD SAMPLE TEMP	82.9	degC	**	**
	MUD SAMPLE RES	1.000	ohm.m	**	**
	MUD REFERENCE TEMP	15.0	degC	**	**
	TEMP GRADIENT	0.187	d.01 degC/m	**	**

HDIL PROCESSING

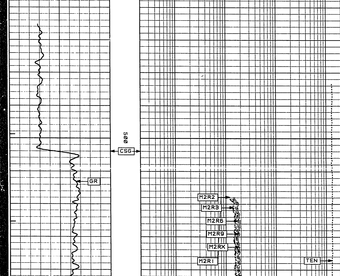
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		**	**
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		**	**
	TEMP CORR SOURCE	USE TXTEMP		**	**

CURVE MEASURE POINT OFFSET

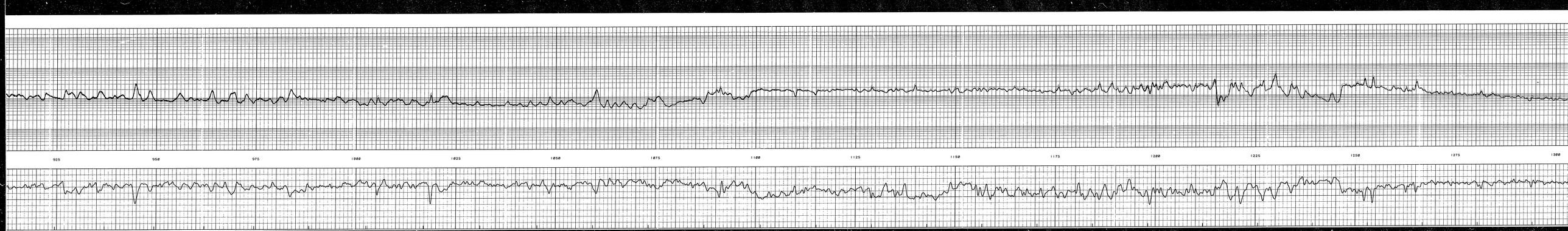
CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	0.99	m2r2	2.59	m2r5	2.59	m2rx	2.59
m2r1	2.59	m2r3	2.59	m2r6	2.59	ten	2.59

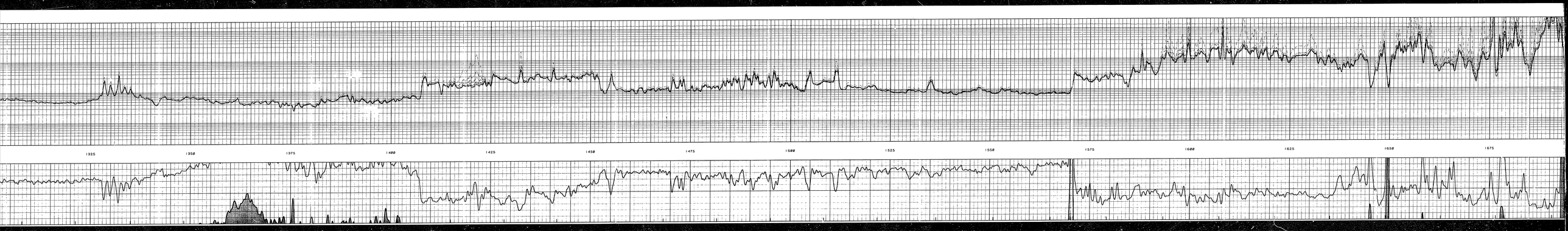
Presentation: /data/pass/por-smouch-8/hdil_ce.cdd.ppf
Data File : F1 : /opt/data/pass/por-smouch-8/pf4d02.xtf
Company : paramount resources inc.
Well : paramount et al flord s-8)
Field : undefined
Interval : 478.35 - 1933.35 Meters
Oct : pf4dd

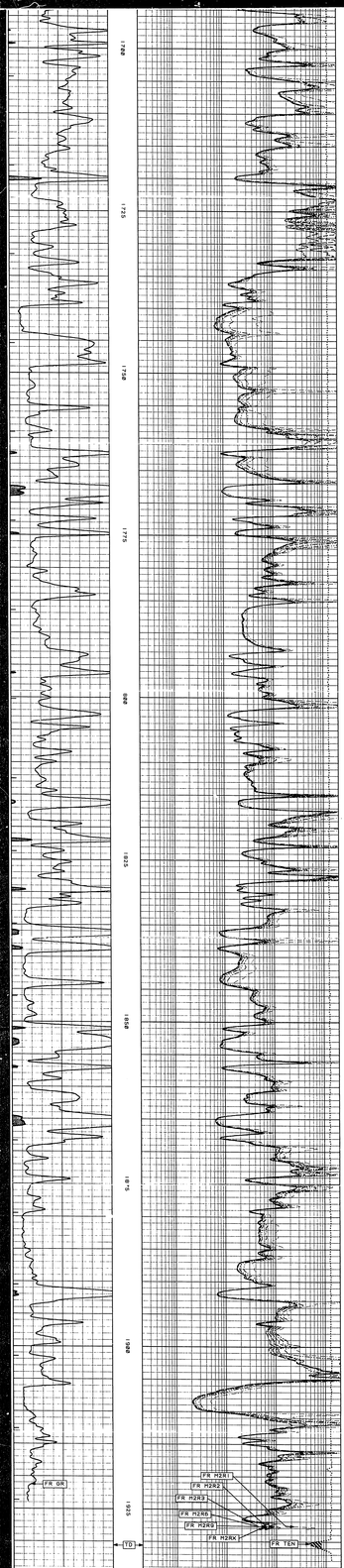
GR BACKUP
GAMMA RAY (gr)
0
150
(gAPI)
MINUTE MARK
PRESENTATION
Resistivity
2FT. Matched Resolution Resistivity
2 in. DOI (m2r1)
20 in. DOI (m2r2)
30 in. DOI (m2r3)
60 in. DOI (m2r6)
90 in. DOI (m2rx)
120 in. DOI (m2cx)
(ohm.m)
DIFF. TENSION (ten)
(kgf)




525
550
575
600
625
650
675
700
725
750
775
800
825
850
875
900


925
950
975
1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275
1300


1325
1350
1375
1400
1425
1450
1475
1500
1525
1550
1575
1600
1625
1650
1675



MAIN PASS - 3 CURVE PRESENTATION

Release:3.1 Nov 18, 1998 Fileview 2.27 Cplot /RB/12 Thu Mar 11 15:58:29 1999
Pdrplt /main/46 Pdf_Cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/spas/paramount9-81/d764083.pre
LOGGING MODE: DEPTH, DIRECTION: UP
TOP DEPTH: 491.064 m BOTTOM DEPTH: 1933.345 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
QR	FILTER (1	medium (1)		"	"
HDIL	HDIL E.FT RES	OFF		"	"
Y AXIS CALIPER	FILTER (1	light (2)		"	"
	FILTER (.4	light (2)		"	"
	FILTER (.1	light (2)		"	"
TENSION	FILTER (1	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (ahbs)	USE CALIPER		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (ahbs)	222.998	mm	"	"
MUD VALUES SOURCE	RMUD SOURCE (MUD)	OIL BASE MUD		"	"
MUD VALUES	MUD SAMPLE TEMP	83.9	degC	"	"
	MUD SAMPLE RM	0.898	ohm.m	"	"
	MUD REFERENCE TEMP	21.1	degC	"	"
	TEMP GRADIENT	0.187	0.01 degC/m	"	"

HDIL PROCESSING

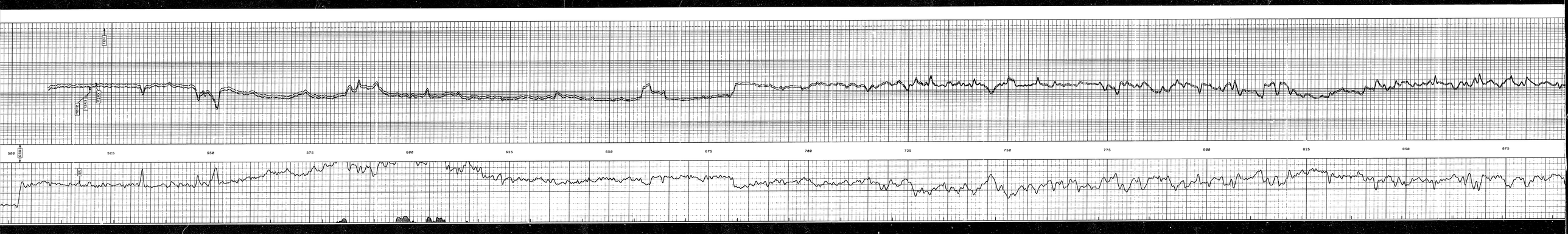
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		"	"
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	no		"	"
	TEMP CORR SOURCE	USE TMTEMP		"	"

CURVE MEASURE POINT OFFSET

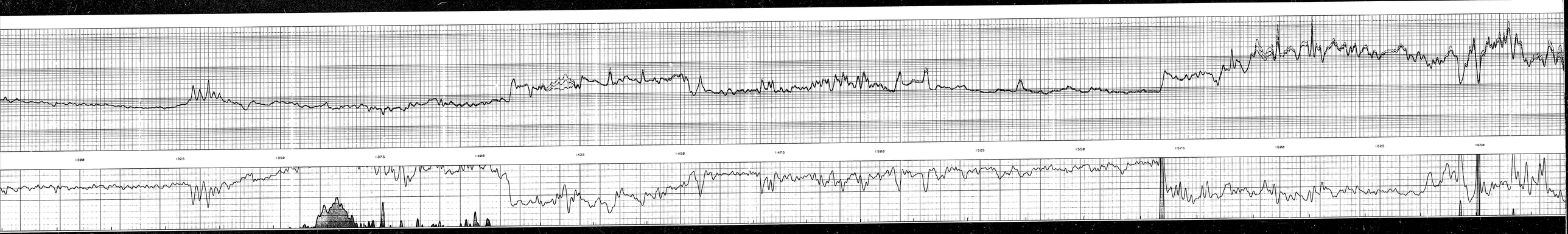
CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
QT	0.00	HDI3	2.59	ten	0.00		
HDI2	2.59	HDI4	2.59				

Presentation : /data/spas/paramount9-81/mcl1.mcl
Data file : FT : dpt:/data/spas/paramount9-81/d764083.dlis
Company : paramount resources ltd.
Well : paramount et al ilford grdf
Field : undefined
Interval : 476.55 - 1933.35 Meters
Oct : d7400

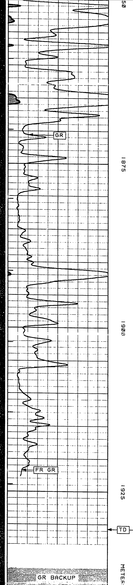
QR BACKUP
GAMMA RAY (gr)
0
150
MINUTE MARK
FINAL PRINTING
2FT. Matched Resolution Resistivity
20 in. DOI (m2r2)
0.2
2000
(ohm.m)
30 in. DOI (m2r3)
0.2
2000
(ohm.m)
120 in. DOI (m2rx)
0.2
2000
(ohm.m)
DIFF. TENSION (ten)
0
2000
(lbf)

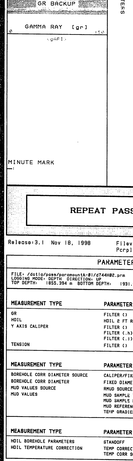

TEN
PEN
TEN
PEN
500
525
550
575
600
625
650
675
700
725
750
775
800
825
850
875
CEN
CEN

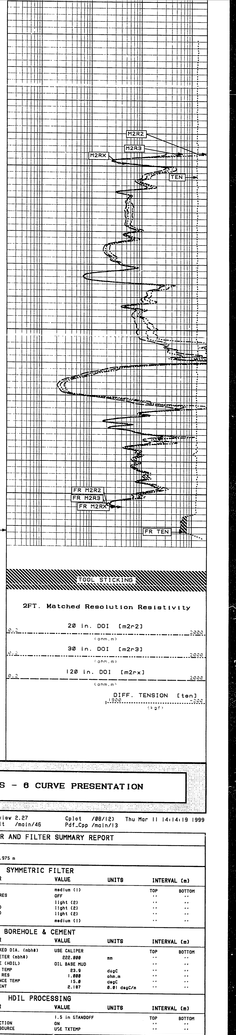

900
925
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METERS
FR TEST
FR TEST
FR TEST







REPEAT PASS - 6 CURVE PRESENTATION

Release:3.1 Nov 18, 1998 Fileview 2.27 Cplot /BB/12 Thu Mar 11 14:14:19 1999
Perpit /main/45 Perl/cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dsti/prpsa/porcmounth-01/u74480.prm
LOGGING MODE: DEPTH DIRECTION: DOWN
TOP DEPTH: 1855.394 m BOTTOM DEPTH: 1991.975 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
GR	FILTER 1)	medium (1)			
HDIL	HDIL # PT RES	OFF		**	**
Y AXIS CALIPER	FILTER 2)	light (2)		**	**
	FILTER 2.5)	light (2)		**	**
	FILTER 3.3)	light (2)		**	**
TENSION	FILTER 10)	medium (10)		**	**

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (hdia)	USE CALIPER		**	**
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mdia)	222.000	mm	**	**
MUD VALUES SOURCE	MUD SOURCE (MSTL)	OIL BASE MUD		**	**
MUD VALUES	MUD SAMPLE TEMP	83.9	degC	**	**
	MUD SAMPLE RES	1.000	ohm.m	**	**
	MUD REFERENCE TEMP	15.0	degC	**	**
	TEMP GRADIENT	0.00	0.01 degC/m	**	**

HDIL PROCESSING

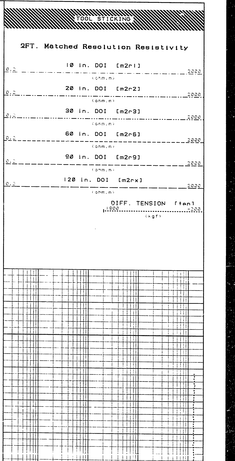
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		**	**
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		**	**
	TEMP ZOOM SOURCE	USE TXTEMP		**	**

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	0.99	ndrz	2.59	ndrk	2.59	ndrx	2.59
ndri	2.59	ndr2	2.59	ndr3	2.59	ten	0.00

presentation : /dsti/prpsa/porcmounth-01/dil/prs10.pdf
Data file : fc:\ cpu\~fdil\prpsa\porcmounth-01\u74480.dlt
Company : paramount resources ltd.
Well : paramount et al ilure e-81
Field : undefined
Interval : 1855.1 - 1932.13 Meters
Dit : u74480





CALIBRATION / VERIFICATION SUMMARY

Source File: /dsti/prpsa/porcmounth-01/u74480.tp

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 3029KA 1531F4 DATE/TIME PERFORMED: Fri Feb 19 14:48:25 1999
UNIT #: 2008TB 9L6544 CALB JIG #: 4782KK 8a0559

	BACKGROUND CALIBRTR ON (cts/s)	CR (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND CALIBRTR ON (gAPI)	CALIBRTR (gAPI)	CALIBRTR ON (gAPI)
GR	214.51	1189.62	895.3	0.168	35.94	185.94	150
			214.4 1192.0				

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 3029KA 1531F4 DATE/TIME PERFORMED: Fri Feb 19 14:54:57 1999
UNIT #: 2008TB 9L6544 VERI JIG #: 4782KK 8a0559

	BACKGROUND CALIBRTR ON (cts/s)	(cts/s)	MULT	BACKGROUND CALIBRTR ON (gAPI)	(gAPI)	DIFF. (gAPI)
GR	214.07	1192.54	0.168	35.99	184.74	148.74
				36.01	184.85	

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2SDMA 130174 DATE/TIME PLANNED: Thu Mar 11 12:18:07 1999

UNIT #: 2000TB HLS544 VER1 JIS #: 2TRDNK 8dc559

	BACKGROUND CALIBR ON (cts/s)	(cts/s)	MULT	BACKGROUND CALIBR ON (gAPI)	(gAPI)	DIFF. (gAPI)
GR	193.84	1875.38	0.100	27.30	180.17	152.85
						152.85

GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 2SDMA 130174 DATE/TIME PERFORMED: Thu Mar 11 12:28:41 1999

UNIT #: 2000TB HLS544 VER1 JIS #: 2TRDNK 8dc559

	BACKGROUND CALIBR ON (cts/s)	(cts/s)	MULT	BACKGROUND CALIBR ON (gAPI)	(gAPI)	DIFF. (gAPI)
GR	193.71	1894.72	0.100	27.43	183.45	155.99
						155.99

HDIL PRIMARY CALIBRATION SUMMARY

TOOL #: 5ISMA 178647 DATE/TIME PERFORMED: Mon Oct 26 10:10:05 1998

UNIT #: 07MHA 134661 GROUND ID & DATE: 51SB1

ZERO DATA(cnt)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil @ R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil @ Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil I R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001	-0.000	-0.000
Coil I Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil Z R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil Z Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 3 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 3 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 4 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 4 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 5 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 5 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 6 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 6 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil @ R	147	149	124	121	118	111	104	98.4
Coil @ P	7.1	22.6	37.8	53.1	68.3	83.5	98.8	113.9
Coil I R	220	222	218	218	221	215	176	181
Coil I P	7.9	24.6	41.1	57.6	73.9	90.1	106.1	122.9
Coil Z R	442	440	433	422	409	391	369	340
Coil Z P	7.4	23.3	39.1	54.9	70.8	86.6	102.7	118.7
Coil 3 R	710	714	702	689	667	639	603	560
Coil 3 P	7.3	22.9	38.4	53.9	69.3	85.2	100.7	116.3
Coil 4 R	1140	1138	1122	1093	1058	1012	955	883
Coil 4 P	7.2	24.1	40.4	56.8	73.2	89.5	105.4	121.6
Coil 5 R	2302	2301	2259	2211	2140	2051	1936	1790
Coil 5 P	9.8	26.6	41.9	58.8	75.7	92.5	109.2	125.6
Coil 6 R	5838	5881	5718	5567	5374	5148	4882	4514
Coil 6 P	8.3	25.1	43.7	61.5	79.3	97.3	115.0	133.1

AM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil @ R	333	-150	-232	-252	-250	-256	-256	-255
Coil @ Q	1468	558	387	183	81	48	-9	-49
Coil I R	518	49	-12	-31	-29	-44	-47	-49
Coil I Q	1132	454	281	161	154	123	109	83
Coil Z R	182	25.5	6.1	-9.1	-9.1	-4.5	-4.5	-4.5
Coil Z Q	382.5	179.8	84.5	64.3	43.7	27.2	43.4	48.1
Coil 3 R	49.5	5.5	0.0	-5.5	-5.5	-5.5	-5.5	-5.5
Coil 3 Q	32.7	21.2	19.3	19.3	19.3	19.3	19.3	21.2
Coil 4 R	18.3	1.4	0.0	-1.4	-1.4	-1.4	-1.4	-1.4
Coil 4 Q	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coil 5 R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coil 5 Q	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coil 6 R	-1.6	-4.8	-4.8	-4.8	-4.8	-4.8	-4.8	-4.8
Coil 6 Q	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0	-9.0

MM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil @ M	1.020	1.023	1.020	1.019	1.017	1.017	1.016	1.017
Coil @ P	0.944	0.944	0.939	0.939	0.939	0.939	0.939	0.939
Coil I M	0.999	0.997	0.997	0.998	0.999	0.999	0.999	0.999
Coil I P	0.939	0.939	0.939	0.939	0.939	0.939	0.939	0.939
Coil Z M	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Coil Z P	0.939	0.939	0.939	0.939	0.939	0.939	0.939	0.939
Coil 3 M	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Coil 3 P	0.939	0.939	0.939	0.939	0.939	0.939	0.939	0.939
Coil 4 M	1.002	1.001	1.001	1.001	1.001	1.001	1.001	1.001
Coil 4 P	0.939	0.939	0.939	0.939	0.939	0.939	0.939	0.939
Coil 5 M	1.002	1.001	1.001	1.001	1.000	1.000	1.000	1.000
Coil 5 P	0.939	0.939	0.939	0.939	0.939	0.939	0.939	0.939
Coil 6 M	1.018	1.009	1.010	1.017	1.017	1.022	1.026	1.031
Coil 6 P	0.923	0.923	0.923	0.923	0.923	0.923	0.923	0.923

PARMS	TCID @	TCID 1	Col Temp	T Factor
			deg C	
10s	1.520	0.930	28.9	1.04

HDIL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 5ISMA 178647 DATE/TIME PERFORMED: Thu Mar 11 14:02:34 1999

UNIT #: 2000TB HLS544

ZERO DATA(cnt)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil @ R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil @ Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil I R	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil I Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil Z R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil Z Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 3 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 3 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 4 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 4 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 5 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 5 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 6 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 6 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil @ M	109	107	124	121	117	111	104	97
Coil @ P	7.1	22.6	37.8	53.1	68.4	83.7	98.9	113.9
Coil I M	226	223	218	217	221	215	176	182
Coil I P	7.9	24.6	41.1	57.6	73.9	90.1	106.1	122.9
Coil Z M	443	440	433	422	409	391	369	340
Coil Z P	7.3	22.9	38.7	54.5	70.4	86.2	102.3	118.4
Coil 3 M	708	714	702	689	667	639	603	560
Coil 3 P	7.3	23.0	38.4	54.0	69.4	85.3	100.8	116.4
Coil 4 M	1141	1138	1122	1093	1058	1012	955	883
Coil 4 P	7.2	24.1	40.4	56.8	73.2	89.5	105.4	121.6
Coil 5 M	2302	2301	2259	2211	2140	2051	1936	1790
Coil 5 P	9.8	26.6	41.9	58.8	75.7	92.5	109.2	125.6
Coil 6 M	5838	5881	5718	5567	5374	5148	4882	4514
Coil 6 P	8.3	25.1	43.7	61.5	79.3	97.3	115.0	133.1

HDIL AFTER LOG VERIFICATION SUMMARY

TOOL #: 5ISMA 178647 DATE/TIME PERFORMED: Thu Mar 11 15:58:18 1999

UNIT #: 2000TB HLS544

ZERO DATA(cnt)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil @ R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil @ Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil I R	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil I Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil Z R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil Z Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 3 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 3 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 4 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 4 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 5 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 5 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coil 6 R	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
Coil 6 Q	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil @ M	109	108	124	121	117	111	104	97
Coil @ P	7.1	22.6	37.8	53.1	68.4	83.7	98.9	113.9
Coil I M	226	223	218	217	221	215	176	182
Coil I P	7.9	24.6	41.1	57.6	73.9	90.1	106.1	122.9
Coil Z M	443	440	433	422	409	391	369	340
Coil Z P	7.3	22.9	38.7	54.5	70.4	86.2	102.3	118.4
Coil 3 M	708	714	702	689	667	639	603	560
Coil 3 P	7.3	23.0	38.4	54.0	69.4	85.3	100.8	116.4
Coil 4 M	1141	1138	1122	1093	1058	1012	955	883
Coil 4 P	7.2	24.1	40.4	56.8	73.2	89.5	105.4	121.6
Coil 5 M	2302	2301	2259	2211	2140	2051	1936	1790
Coil 5 P	9.8	26.6	41.9	58.8	75.7	92.5	109.2	125.6
Coil 6 M	5838	5881	5718	5567	5374	5148	4882	4514
Coil 6 P	8.3	25.1	43.7	61.5	79.3	97.3	115.0	133.1

Baker Atlas

COMPANY: PARAMOUNT RESOURCES LTD.
WELL: PARAMOUNT ET AL I-LAND A-81
FIELD: UNDEFINED
PROVINCE: NORTHWEST TERRITORIES
LOCATION:
W20-1858
NW: 68558 UP 120609 15°

FILE NO:
API NO:
ELEVATIONS
KB 522.7 M
DF
GL 517.3 M
DATE: 11-MAR-1999

N.E.B. COPY

DEPTH

HIGH DEFINITION INDUCTION LOG
GAMMA RAY LOG

Baker Atlas

FILE NO:		
API NO:		
Ver 3.19		
	COMPANY	PARAMOUNT RESOURCES LTD.
	WELL	PARAMOUNT ET AL LIARD A-81
	FIELD	UNDEFINED
	PROVINCE	NORTHWEST TERRITORIES
	LOCATION: M10-1858 M81 930E0 18° 1230E0S 15°	

OTHER SERVICES
ZDL-CN-GR-XY
MAC-GR-CAL
HDIL-GR
DLL
LOGSTAR

PERMANENT DATUM	G.L.	ELEVATION	517.2 M
LOG MEASURED FROM	K.B.	5.5 M	ABOVE P.D.
DRILL. MEAS. FROM	KELLY BUSHING		

ELEVATIONS
KB 522.7 M
DF
GL 517.2 M

DATE		11-MAR-1999	TUO
RUN	TRIP	1 1	
SERVICE ORDER		97351@	
DEPTH DRILLER		1935.0 M	1934.2 M
DEPTH LOGGER		1938.0 M	1929.0 M
BOTTOM LOGGED INTERVAL		1935.1 M	1927.3 M
TOP LOGGED INTERVAL		582.0 M	582.0 M
CASING-DRILLER		339.7 MM @ 583.0 M	@
CASING LOGGER		582.0 M	
BIT SIZE		222 MM	
TYPE OF FLUID IN HOLE		INVERT	
D. DENSITY	VISCOSITY	975 G/CS 47 S	
PH	FLUIDLOSS	- -	
SOURCE OF SAMPLE		FLOWLINE	
RM AT MEAS. TEMP.		- @ -	@
RMF AT MEAS. TEMP.		- @ -	@
RMC AT MEAS. TEMP.		- @ -	@
SOURCE OF RMF RMC		- -	
RM AT BHT		- @ -	@
TIME SINCE CIRCULATION		5 HRS	
MAX. RECORDED TEMP.		61.2 DEGC	
EQUIP. NO. LOCATION		HL6544 G.P.	
RECORDED BY		N.LESAGE	
WITNESSED BY		R.CLATTENBURG	

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL USE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT BUT BAKER ATLAS, AS PART OF THE CONSIDERATION FOR THE REQUESTING OF THESE OR OTHER MEASUREMENTS, NO CLAIMS, NOR DO DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS MADE, AND WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES SUFFERED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS.

REMARKS

RUN / TRIP 1: time stopped circulation/1-mar-1999, 09:00
-all scales and presentations as per customers request.
-no repeat section recorded.
-no gr presented due to invert mud system.
\\Pmacs-prints_4.ansi

RUN	TRIP
1	1

EQUIPMENT DATA

TOOL	SERIAL NO.	POSITION
DIGITAL		
SONDE	12829	
CARTRIDGE	12829	
TEMP.	12829	
DIGITAL	12829	
CARTRIDGE	12829	
GR	12829	
CCL	12829	
TELEMETRY	12829	
		TOP OF TOOL
		BOTTOM OF TOOL
		BOW SPRING

INSTRUMENT CONFIGURATION

Depths File: /pdata/pipeline/paramount/ea-81/dll-log

CASING TOP / 0.0 m

CN, MP / 4.08 m

TDT-GR / 22.0 m
TDT-GR / 22.0 m

GR-CASING
Serial : 12829
Length : 4.2 m
Measure Point: 48.2 m ABV. CASING TOP

BHC
Serial : 28444
Length : 3.5 m
Diameter : 89 mm

CALIPER
Serial : 12829
Length : 1.2 m
Diameter : 89 mm
Measure Point: 134.1 m ABV. CN, MP

TDT-GR
Serial : 12829
Length : 4.2 m
Diameter : 89 mm
Measure Point: 42.2 m ABV. TDT-GR
Measure Point: 42.2 m ABV. TDT-GR

GR-CASING-BOREHOLE
Serial : 12829
Length : 4.2 m
Diameter : 89 mm

DUAL INDUCTION
Serial : 12829
Length : 4.2 m
Diameter : 89 mm
Measure Point: 4.2 m ABV. DF

HIGH DEFINITION INDUCTION TOOL
Serial : 12829
Length : 4.2 m
Diameter : 89 mm
Measure Point: 4.2 m ABV. DF
Measure Point: 4.2 m ABV. DF

DF / 4.2 m

WOW / 3.07 m

4.08 m

TOOL LENGTH: 17.2 m
TOOL WEIGHT: 442.8 Kg
MAX. DIAMETER: 89 mm

MAIN PASS - TRUE VERTICAL DEPTH

Release:3.1 Nov 18, 1998

Filename: 2.dif
Script: /main/46

Grid: /RB/1D Thu Mar 11 08:49:54 1999
Plt.Cap /main/3

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
GR	0.00	HDF2	2.56	tm	0.00		
HDF	2.56						

Presentation: /pdata/pipeline/paramount/ea-81/main.pdf
Parameter: /pdata/pipeline/paramount/ea-81/main.dif
Data Source : /pdata/pipeline/paramount/ea-81/dll-log.dfs
Company : paramount resources ltd.
Well : paramount et al liard a-81
Field : undefined
Location : 930E 18° 1230E 15° M10-1858
Date : 07-Mar

GR BACKUP

GAMMA RAY [gr] 0 150

[ohmm] 0.2 2000

2FT. Matched Resolution Resistivity

20 in. DOI (ed2r2)
30 in. DOI (ed2r3)
120 in. DOI (ed2rx)

DIFF. TENSION [tendiff] -1000 1000

METERS

500 525

TUO TDT-GR TDT-GR

MINUTE MARK

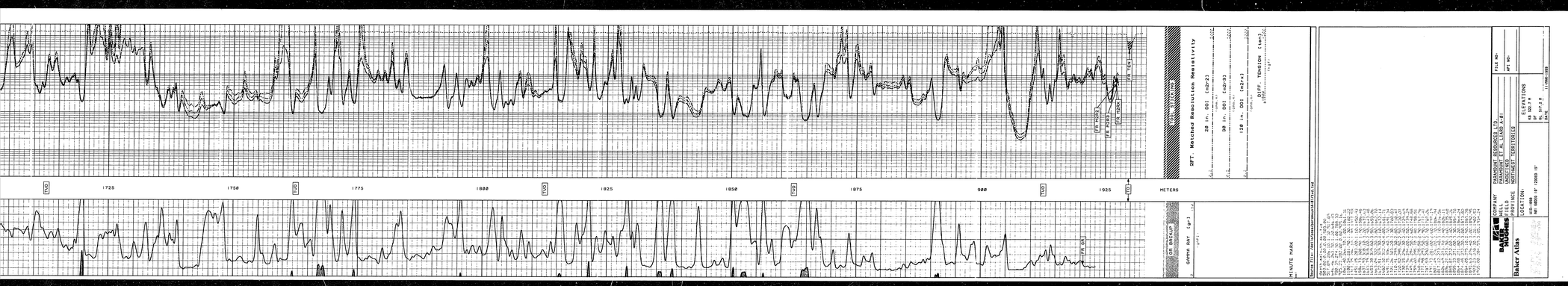
PDAC PDAS PDAS PDAC

EOT


550
575
600
625
650
675
700
725
750
775
800
825
850
875
900
925


950
TWO
975
1000
TWO
1025
1050
TWO
1075
1100
TWO
1125
1150
TWO
1175
1200
TWO
1225
1250
TWO
1275
1300
TWO


1325
1350
1375
1400
1425
1450
1475
1500
1525
1550
1575
1600
1625
1650
1675
1700



Depth File: /petrophysics/data/Filter.tbl

| | | |

Baker Atlas

BAKER HUGHES

HIGH DEFINITION INDUCTION LOG
GAMMA RAY LOG

FILE NO.	1.18
API NO.	
COMPANY	PARAMOUNT RESOURCES LTD.
WELL	PARAMOUNT ET AL LLBU C-81
FIELD	
PROVINCE	NORTHWEST TERRITORIES
LOCATION	69° 43' 32.000"N 134° 51' 15.000"W
PERMANENT DATUM	G.L.
ELEVATION	0.0 m
LOG MEASURED FROM	KELLY BUSHING
ABOVE P.D.	5.5 m
ELEVATIONS	KB 0.0 m DF 0.0 m GL -5.5 m
DATUM	MSL 69°54'N 134°52'W
DATE	28-Mar-99
RUN NUMBER	ONE
DEPTH DRILLER	1795.0 m
DEPTH LOGGER	1793.5 m
BOTTOM LOGGED INTERVAL	1792.5 m
TOP LOGGED INTERVAL	1.0 m
CASING DRILLER	244.5 mm @ 1.0 m
CASING LOGGER	244.5 mm @ 1.0 m
BIT SIZE	222.3 mm
TYPE FLUID IN HOLE	SPUD MUD
DENSITY	1.05
VISCOSITY	45
PH	9.0
FLUID LOSS	6.0
SOURCE OF SAMPLE	CIRC
RM @ MEAS. TEMP.	0.750 @ 15.0
RMF @ MEAS. TEMP.	0.600 @ 15.0
RMC @ MEAS. TEMP.	1.000 @ 15.0
SOURCE RMF / RMC	CALC / CALC
RM @ BHT	0.350 @ 45.0
TIME SINCE CIRC.	5.5 HRS
TIME ON BOTTOM	03:00 28-MAR-99
MAX. REC. TEMP.	45.0
EQUIP. LOCATION	69
RECORDED BY	B. MARTINUSSEN
WITNESSED BY	B. FUSICK

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 2 TRIP 1 - time stopped circulation: 28-mar-99 01:00

- tied in to baker atlas log 11-mar-99.

-all scales and presentations as per customers request.

-no sp presented due to invert mud system.

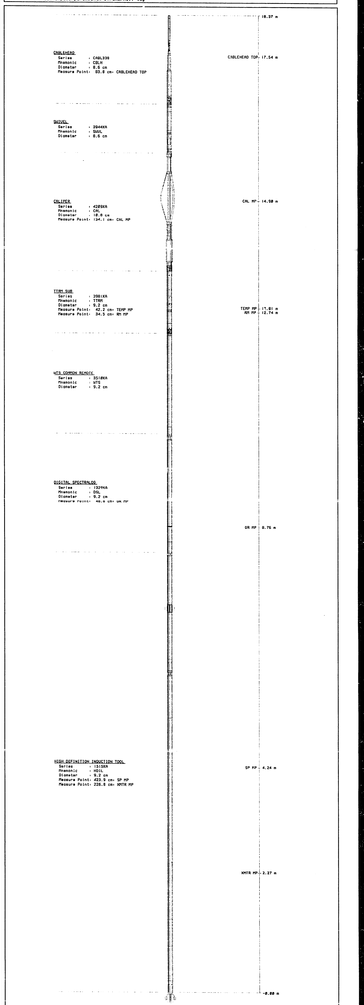
crew:b.pinto, b.fusick

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	SWIVEL	29048	13251	TOP
1	1	CNL	29RKN	844839	VOLTRON
1	1	TTRM	29STK	18648	FREE
1	1	TTRM	29STK	18647	FREE
1	1	GGS	11GKA	13214	FREE
1	1	HDIL	13ISM/13ISN	17788G/17864T	39 MR STANDOFF

INSTRUMENT CONFIGURATION

Source file: /dsl/prodsys/paramount4-81rund/hdil1.cpg



MAIN PASS - UPPER PRESENTATION

Release:9.1 Nov 18, 1998 Fileview 2.27 Cplot /88/12\ Tue Mar 23 09:28:28 1999
Pdata /main/46 Pef.Cop /main/3

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dsl/prodsys/paramount4-81rund/at4mdt2.scn
Logging mode: depth; direction: up
TOP DEPTH: 1793.875 m BOTTOM DEPTH: 2848.313 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
GR	FILTER ()	medium (1)		TOP	BOTTOM
HDIL	HDIL P FT RES	OFF		--	--
Y AXIS CALIPER	FILTER ()	light (2)		--	--
	FILTER (.5)	light (2)		--	--
	FILTER (.3)	light (2)		--	--
TENSION	FILTER ()	medium (1)		--	--

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (mdm)	USE CALIPER		TOP	BOTTOM
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mdm)	222.875	mm	--	--
MUD VALUES SOURCE	MNUD SOURCE (HDIL)	OIL BASE MUD		--	--
MUD VALUES	MUD SAMPLE TEMP	23.9	degC	--	--
	MUD SAMPLE RES	1.000	ohm_m	--	--
	mud resistivity temp	21.0	degC	--	--
	TEMP GRADIENT	0.197	K/M degC/m	--	--

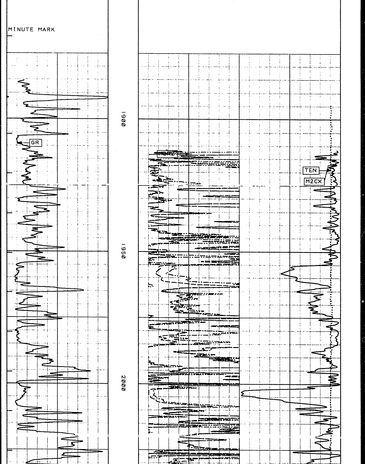
HDIL PROCESSING

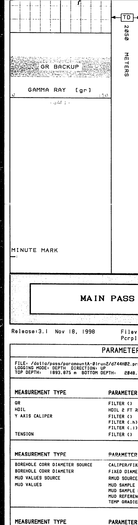
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		TOP	BOTTOM
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		--	--
	TEMP CORR SOURCE	USE THTEMP		--	--

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
GR	0.09	ADIC	0.09	ten	0.00		
ADIA	0.09		0.09				

Presentation : /dsl/prodsys/paramount4-81rund/hdil_up.pdf
Data file : -fl c:\dsl\data\prodsys\paramount4-81rund/at4mdt2.xtf
Company : paramount resources ltd.
Well : paramount et al lldu c-81
Field : undefined
Interval : 1879.89 - 2848.94 Meters
Gl : dfaan





MAIN PASS - 0 CURVE PRESENTATION

Release-3.1 Nov 18, 1998 Fileview 2.27 /mnin/46 Cplot /80/12\ Sat Mar 28 07:10:08 1999 Ps/plt /mnin/13 Pdf.Cpp /mnin/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dsitu/pass/paramount4-01run2/d4744002.prn
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 1693.874 m BOTTOM DEPTH: 2848.713 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
GR	FILTER (1)	medium (1)		TOP	BOTTOM
HDIL	HDIL 8 FT RES	OFF		"	"
9 ARIS CALIPER	FILTER (2)	light (2)		"	"
	FILTER (.5)	light (2)		"	"
	FILTER (.1)	light (2)		"	"
TENSION	FILTER (1)	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER(FIXED DIA. (m))	USE CALIPER		TOP	BOTTOM
BOREHOLE CORR DIAMETER	FIXED DIAMETER (m)	200.025	mm	"	"
MUD VALUES SOURCE	RMUD SOURCE (HDIL)	OIL BASE MUD		"	"
MUD VALUES	MUD SAMPLE TEMP	23.9	degC	"	"
	MUD SAMPLE RES	1.000	ohm.m	"	"
	MUD REFERENCE TEMP	15.6	degC	"	"
	TEMP GRADIENT	0.187	0.01 degC/m	"	"

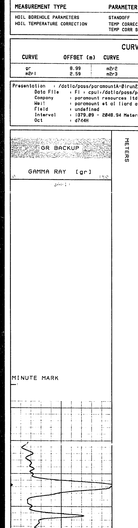
HDIL PROCESSING

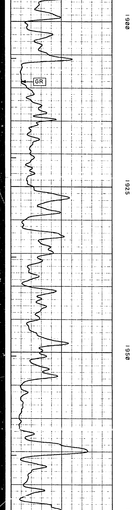
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		TOP	BOTTOM
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		"	"
	TEMP CORR SOURCE	USE TXTEMP		"	"

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	0.00	m2r2	2.59	m2rx	2.59	m2cx	2.59
m2r3	2.59	m2r1	2.59	m2r8	2.59	ten	0.00

Presentation : /dsitu/pass/paramount4-01run2/hdil_mid4.pdf
Data File : F: r cpu\/dsitu/pass/paramount4-01run2/d4744002.tlf
Company : paramount resources ltd.
Well : paramount #1 sd (lard d-01
Field : undefined
Interval : 1370.89 - 2848.94 Meters
Dbi : dfdbi





MAIN PASS - 3 CURVE PRESENTATION

Release-3.1 Nov 18, 1998 Fileview 2.27 /mnin/46 Cplot /80/12\ Sat Mar 28 07:12:45 1999 Ps/plt /mnin/13 Pdf.Cpp /mnin/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dsitu/pass/paramount4-01run2/d4744002.prn
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 1693.874 m BOTTOM DEPTH: 2848.713 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
GR	FILTER (1	medium (1)		TOP	BOTTOM
HDIL	HDIL 8 FT RES	OFF		"	"
9 ARIS CALIPER	FILTER (1	light (2)		"	"
	FILTER (.5)	light (2)		"	"
	FILTER (.1	light (2)		"	"
TENSION	FILTER (1	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER(FIXED DIA. (m))	USE CALIPER		TOP	BOTTOM
BOREHOLE CORR DIAMETER	FIXED DIAMETER (m)	200.025	mm	"	"
MUD VALUES SOURCE	RMUD SOURCE (HDIL)	OIL BASE MUD		"	"
MUD VALUES	MUD SAMPLE TEMP	23.9	degC	"	"
	MUD SAMPLE RES	1.000	ohm.m	"	"
	MUD REFERENCE TEMP	15.6	degC	"	"
	TEMP GRADIENT	0.187	0.01 degC/m	"	"

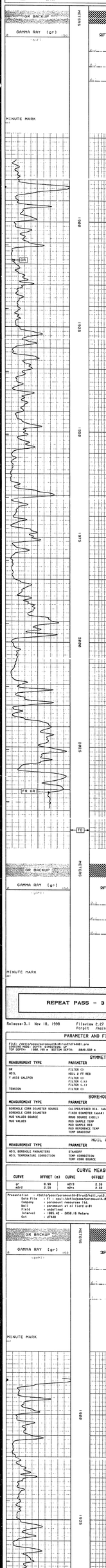
HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		··	··
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		··	··
	TEMP CORR SOURCE	USE TXTEMP		··	··

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	0.00	ab/3	2.59	ten	0.00		
ab/2	2.59	ab/x	2.59				

Presentation : /data/sess/paramount4-0/run2/hdil_mcin3.pdf
Data File : FI : cpul:/data/sess/paramount4-0/run2/f4440.ctf
Company : paramount resources ltd.
Well : paramount et al lloyd a-81
Field : undefined
Interval : 1979.89 - 2849.94 Meters
Dict : d1464



REPEAT PASS - 3 CURVE PRESENTATION

Release:3.1 Nov 18, 1998 Fileview 2.27 Cplot /80/12 Sat Mar 20 07:13:11 1999
Port: /data/d5 Pdf.Cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/sess/paramount4-0/run2/f4440.pra
TOOL STRING (TOP TO BOTTOM)
TOP DEPTH: 1980.199 m BOTTOM DEPTH: 2849.932 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
GR	FILTER 1)	medium (1)		··	··
HDIL	HDIL 2 FT RES	OFF		··	··
Y AXIS CALIPER	FILTER 4)	light (2)		··	··
	FILTER 5.5)	light (2)		··	··
	FILTER 7.)	light (2)		··	··
TENSION	FILTER 8)	medium (1)		··	··

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER(FIXED DIA. CHOSE)	USE CALIPER		··	··
BOREHOLE CORR DIAMETER	FIXED DIAMETER CHOSE)	200.025	mm	··	··
MUD VALUES SOURCE	RMUD SOURCE (HDIL)	OIL BASE MUD		··	··
MUD VALUES	MUD SAMPLE TEMP	23.9	degC	··	··
	MUD SAMPLE RES	1.000	ohm.m	··	··
	MUD REFERENCE TEMP	15.6	degC	··	··
	TEMP GRADIENT	0.167	0.01 degC/m	··	··

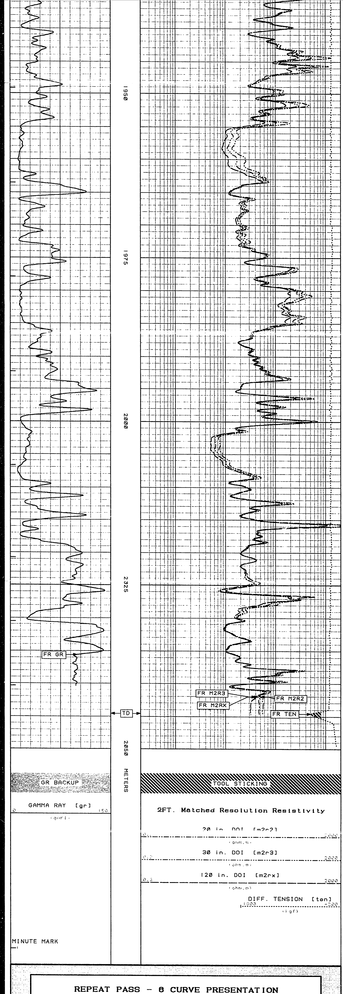
HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		··	··
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		··	··
	TEMP CORR SOURCE	USE TXTEMP		··	··

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	0.00	ab/3	2.59	ten	0.00		
ab/2	2.59	ab/x	2.59				

Presentation : /data/sess/paramount4-0/run2/hdil_rpt3.pdf
Data File : FI : cpul:/data/sess/paramount4-0/run2/f4440.ctf
Company : paramount resources ltd.
Well : paramount et al lloyd a-81
Field : undefined
Interval : 1980.48 - 2850.15 Meters
Dict : d1464


GR BACKUP
GAMMA RAY [gr]
0
150
MINUTE MARK
FR GR
TD
FR M2R3
FR M2RX
FR TEN
1950
1975
2000
2025
2050
2075
2100
2125
2150
2175
2200
2225
2250
2275
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2450
2475
2500
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2575
2600
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2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925



CALIBRATION / VERIFICATION SUMMARY

Source File: /dsk/users/pasmarquis/PrintFiles.lis

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 530NA 1537/A — DATE/TIME PERFORMED: Fri Feb 19 14:40:25 1999

UNIT #: 3988TB HL6544 — CALS JOB #: AFXENG Rev555

	BACKGROUND CALIBR ON (clicks)	ON DIFF (clicks)	BACKGROUND CALIBR OFF (gAPI)	OFF DIFF (gAPI)	CALIBR TEMP
GR	614.57	189.800	950.79	0.160	35.942	193.540	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 530NA 1537/A — DATE/TIME PERFORMED: Fri Feb 19 14:54:57 1999

UNIT #: 3988TB HL6544 — VERI JOB #: AFXENG Rev555

	BACKGROUND CALIBR ON (clicks)	MULT (clicks)	BACKGROUND CALIBR ON (gAPI)	DIFF. (gAPI)
GR	614.57	1180.424	0.1500	35.942	194.750

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 530NA 1537/A — DATE/TIME PERFORMED: Sat Mar 06 04:11:56 1999

UNIT #: 3988TB HL6544 — VERI JOB #: AFXENG Rev555

	BACKGROUND CALIBR ON (clicks)	MULT (clicks)	BACKGROUND CALIBR ON (gAPI)	DIFF. (gAPI)
GR	321.12	1055.46	0.1500	53.573	218.720

GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 530NA 1537/A — DATE/TIME PERFORMED: Sat Mar 06 04:21:56 1999

UNIT #: 3988TB HL6544 — VERI JOB #: AFXENG Rev555

	BACKGROUND CALIBR ON (clicks)	MULT (clicks)	BACKGROUND CALIBR ON (gAPI)	DIFF. (gAPI)
GR	318.68	1083.87	0.1500	53.100	216.551

HDIL PRIMARY CALIBRATION SUMMARY

TOOL #: 513NA 1786AT — DATE/TIME PERFORMED: Mon Oct 26 10:16:05 1998

UNIT #: 3781NA 1648X1 — RECORD ID & DATE: 513AT

ZERO DATA(cps)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil R R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil R Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil R I	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900
Coil I R	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900
Coil I Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil I I	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil Z R	-2.8900	-2.8111	-2.8125	-2.8131	-2.8131	-2.8063	2.8981	2.8717
Coil Z Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil Z I	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil X R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil X Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil X I	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 1 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 1 Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 1 I	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 2 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 2 Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 2 I	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 3 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 3 Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 3 I	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 4 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 4 Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 4 I	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 5 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 5 Q	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 5 I	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 6 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 6 Q	0.1750	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520
Coil 6 I	0.1750	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520	0.8520

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil R R	127	1252	1747	1211	1130	111	1840	99.9
Coil R P	7.1	67.6	97.8	69.1	64.6	63.5	98.5	113.5
Coil I R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil I P	594	6572	2181	3146	2811	1893	1752	187
Coil Z R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil Z P	7.8	74.6	41.1	57.0	73.5	58.1	89.1	122.8
Coil X R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil X P	443	4481	4331	4218	4845	3915	3930	340
Coil 1 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 1 P	7.4	83.35	35.3	54.9	78.85	60.5	82.3	118.7
Coil 2 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 2 P	7.4	83.35	35.3	54.9	78.85	60.5	82.3	118.7
Coil 3 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 3 P	7.3	81.5	98.6	59.5	64.5	58.2	89.3	118.5
Coil 4 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 4 P	7.3	81.5	98.6	59.5	64.5	58.2	89.3	118.5
Coil 5 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 5 P	7.5	83.1	2099	2222	2351	2062	1798	1780
Coil 6 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 6 P	8.0	85.8	41.5	58.7	76.5	60.5	85.1	123.5
Coil 6 I	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 6 Q	5858	5865	5715	5564	5373	5189	4766	4418
Coil 6 P	8.0	85.1	43.2	61.4	79.0	57.2	113.1	123.8

AM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil R R	333	-165	-232	-252	-259	-248	-248	-251
Coil R Q	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil I R	1464	558	387	163	181	48	-50	-49
Coil I Q	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil I I	514	48	-12	-1	-39	-44	-47	-49
Coil Z R	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil Z Q	1132	1132	1132	1132	1132	1132	1132	1132
Coil Z I	-82	35	25	17	15	13	12	11
Coil X R	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil X Q	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil X I	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 1 R	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil 1 Q	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 1 I	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 2 R	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil 2 Q	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 2 I	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 3 R	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil 3 Q	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 3 I	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 4 R	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil 4 Q	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 4 I	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 5 R	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil 5 Q	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 5 I	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 6 R	1.1	0.54	0.37	0.29	0.26	0.24	0.23	0.23
Coil 6 Q	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Coil 6 I	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36

PM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil R R	-.8070	.8031	1.029	1.032	1.013	1.017	1.016	1.017
Coil R P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil I R	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil I P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil Z R	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil Z P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil X R	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil X P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 1 R	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 1 P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 2 R	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 2 P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 3 R	1.002	1.015	1.015	1.015	1.015	1.015	1.015	1.015
Coil 3 P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 4 R	0.8990	0.8471	0.8998	0.8131	0.8154	0.8998	0.8148	0.8239
Coil 4 P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 5 R	1.001	1.001	1.001	1.002	1.001	1.001	1.001	1.001
Coil 5 P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 6 R	1.001	1.001	1.001	1.002	1.001	1.001	1.001	1.001
Coil 6 P	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 6 I	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140
Coil 6 Q	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140	0.1140

PARMS: TCID # 7010 | Cal Temp 150 | T Factor .0

	deg C	
10x	-.028	0.9587

HDIL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 513NA 1786AT — DATE/TIME PERFORMED: Sat Mar 06 01:31:01 1999

UNIT #: 3988TB HL6544

ZERO DATA(cps)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil R R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil R Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil R I	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900
Coil I R	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900
Coil I Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil I I	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil Z R	-2.8900	-2.8111	-2.8125	-2.8131	-2.8131	-2.8063	2.8981	2.8717
Coil Z Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil Z I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil X R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil X Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil X I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 1 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 1 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 1 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 2 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 2 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 2 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 3 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 3 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 3 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 4 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 4 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 4 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 5 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 5 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 5 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 6 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 6 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 6 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil R R	126	1241	1742	1213	1133	111	1844	97
Coil R P	7.2	67.7	98.0	69.2	64.5	63.6	98.8	113.5
Coil I R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil I P	595	6572	2181	3146	2811	1893	1752	187
Coil Z R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil Z P	7.8	74.5	41.0	57.0	74.0	58.2	89.3	122.9
Coil X R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil X P	443	4481	4331	4218	4845	3915	3930	340
Coil 1 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 1 P	7.4	83.35	35.3	54.9	78.85	60.5	82.3	118.7
Coil 2 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 2 P	7.4	83.35	35.3	54.9	78.85	60.5	82.3	118.7
Coil 3 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 3 P	7.3	81.5	98.6	59.5	64.5	58.2	89.3	118.5
Coil 4 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 4 P	7.3	81.5	98.6	59.5	64.5	58.2	89.3	118.5
Coil 5 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 5 P	7.5	83.1	2099	2222	2351	2062	1798	1780
Coil 6 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 6 P	8.0	85.1	43.2	61.4	79.0	57.2	113.1	123.8
Coil 6 I	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 6 Q	5858	5865	5715	5564	5373	5189	4766	4418

HDIL AFTER LOG VERIFICATION SUMMARY

TOOL #: 513NA 1786AT — DATE/TIME PERFORMED: Sat Mar 06 07:07:23 1999

UNIT #: 3988TB HL6544

ZERO DATA(cps)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil R R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil R Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil R I	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900
Coil I R	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900	-0.8900
Coil I Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil I I	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil Z R	-2.8900	-2.8111	-2.8125	-2.8131	-2.8131	-2.8063	2.8981	2.8717
Coil Z Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil Z I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil X R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil X Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil X I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 1 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 1 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 1 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 2 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 2 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 2 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 3 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 3 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 3 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 4 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 4 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 4 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 5 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 5 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 5 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 6 R	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900	-2.8900
Coil 6 Q	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515
Coil 6 I	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515	0.8515

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil R R	126	1241	1742	1213	1133	111	1844	97
Coil R P	7.2	67.7	98.0	69.2	64.5	63.6	98.8	113.5
Coil I R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil I P	595	6572	2181	3146	2811	1893	1752	187
Coil Z R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil Z P	7.8	74.5	41.0	57.0	74.0	58.2	89.3	122.9
Coil X R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil X P	443	4481	4331	4218	4845	3915	3930	340
Coil 1 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 1 P	7.4	83.35	35.3	54.9	78.85	60.5	82.3	118.7
Coil 2 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 2 P	7.4	83.35	35.3	54.9	78.85	60.5	82.3	118.7
Coil 3 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 3 P	7.3	81.5	98.6	59.5	64.5	58.2	89.3	118.5
Coil 4 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 4 P	7.3	81.5	98.6	59.5	64.5	58.2	89.3	118.5
Coil 5 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 5 P	7.5	83.1	2099	2222	2351	2062	1798	1780
Coil 6 R	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 6 P	8.0	85.1	43.2	61.4	79.0	57.2	113.1	123.8
Coil 6 I	1.1	10.8	15.1	10.7	10.0	9.8	15.2	17.5
Coil 6 Q	5858	5865	5715	5564	5373	5189	4766	4418

FILE NO:

API NO:

COMPANY: PARAMOUNT RESOURCES LTD.
WELL: PARAMOUNT ET AL LLARD A-E
FIELD: UNDESIGNATED
PROV / S: NORTHWEST TERRITORIES
LOCATION:
W20-1858
NAD 1983S UP -12000.0 0°

ELEVATIONS
KB 582.7 M
DF
GL 577.9 M
DATE: 28-FEB-1999

Baker Atlas

SONIC

CONFIDENTIAL

Baker Atlas

BAKER HUGHES

MULTIPOLE ARRAY ACOUSTILOG with GAMMA RAY LOG CALIPER LOG

FILE NO:	COMPANY	PARAMOUNT RESOURCES LTD.	
	WELL	PARAMOUNT ET AL LIARD A-01	
API NO:	FIELD	UNDEFINED	
	PROVINCE	NORTHWEST TERRITORIES	
Ver 3.19	LOCATION: WID:1858 AD1 60DEG 10' 123DEG 15'		OTHER SERVICES: HDIL-GR, ZDL-CN-GR-XY, CVL
			TVD_LOGSTAR

PERMANENT DATUM	G.L.	ELEVATION 517.2 M		ELEVATIONS
LOG MEASURED FROM	K.B. 5.5 M	ABOVE P.D.	KB	522.7 M
DRILL MEAS. FROM	KELLY BUSHING		DF	
			GL	517.2 M

DATE		11-MAR-1999				
RUN	TRIP	1	1			
SERVICE ORDER		972510				
DEPTH DRILLER		1935.0 M				
DEPTH LOGGER		1930.3 M				
BOTTOM LOGGED INTERVAL		1923.4 M				
TOP LOGGED INTERVAL		502.0 M				
CASING-DRILLER		339.7 MM @503.0 M				
CASING LOGGER		502.0 M				
BIT SIZE		222 MM				
TYPE OF FLUID IN HOLE		INVERT				
DENSITY	VISCOSITY	975 G/C3	47 S			
PH	FLUIDLOSS	-	-			
SOURCE OF SAMPLE		FLOWLINE				
RM AT MEAS. TEMP.		-	@-			
RMF AT MEAS. TEMP.		-	@-			
RMC AT MEAS. TEMP.		-	@-			
SOURCE OF RMF	RMC	-	-			
RM AT BHT		-	@-			
TIME SINCE CIRCULATION		12.5 HRS				
MAX. RECORDED TEMP.		63.5 DEGC				
EQUIP. NO.	LOCATION	HL6544	G.P.			
RECORDED BY		N.LESAGE				
WITNESSED BY		B.CLATTENBURG				

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 1 TRIP 1 : time stopped circulation:11-mar-1999, 09:00

-all scales and presentations as per customers request.
-maximum deviation=4.1 degrees.
-mac recorded and presented 500-100 usec/m upper presentation (td-sc).
-mac presented on 300-100 usec/m main pass (td-sc).

crew:o.pinto,m.snell

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	SWIVEL	3944XA	153823	FREE
1	1	CAL	4209XA	044639	Y-CALIPER
1	1	TTRM	3981XA	180401	FREE
1	1	WTS	3510XA	168181	FREE
1	1	DGR	1329XA	153174	FREE
1	1	KJNT	3923XA	166792	KNUCKLE JOINT
1	1	DAL	1667EA	121977	FREE
1	1	CENT	4341XA	173361	CENTRALIZER
1	1	MAC	1678MA	188711	CENTRALIZED
1	1	MAC	1678PA	172688	38 MM STANDOFF
1	1	MAC	1668BA	154067	CENTRALIZED
1	1	MAC	1668FA	167218	FREE
1	1	CENT	4341XA	168349	CENTRALIZER

INSTRUMENT CONFIGURATION

Source File: /data/pass/paramountA-01/mac-tdg

CABLEHEAD
Series : CABL338
Mnemonic : CBLH
Diameter : 8.6 cm
Measure Point: 83.8 cm: CABLEHEAD TOP

SWIVEL
Series : 3944XA
Mnemonic : SWVL
Diameter : 8.6 cm

CALIPER
Series : 4209XA
Mnemonic : CAL
Diameter : 10.8 cm
Measure Point: 134.1 cm: CAL MP

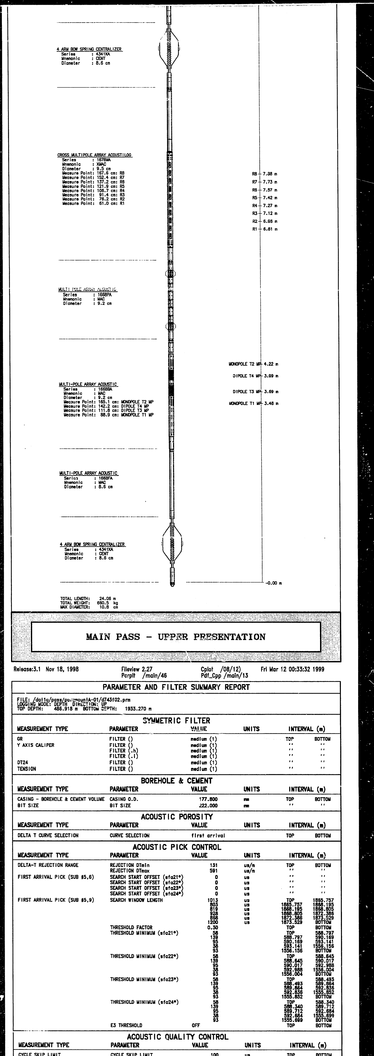
TTRM SUB
Series : 3981XA
Mnemonic : TTRM
Diameter : 9.2 cm
Measure Point: 42.2 cm: TEMP MP
Measure Point: 34.5 cm: RM MP

WTS COMMON REMOTE
Series : 3510XA
Mnemonic : WTS
Diameter : 9.2 cm

DIGITAL SPECTRALOG
Series : 1329XA
Mnemonic : DSL
Diameter : 9.2 cm
Measure Point: 48.8 cm: GR MP

KNUCKLE JOINT
Series : 3923XA
Mnemonic : KNJT
Diameter : 8.6 cm

ARRAY ACOUSTILOG ELECTRONICS
Series : 1667EA
Mnemonic : DAC
Diameter : 8.6 cm



MAIN PASS - UPPER PRESENTATION

Release:3.1 Nov 18, 1998 Filedrev 2.27 Fri Mar 12 00:33:32 1999
Purge : /main/46 Plot_Cpy : /main/13
Calot : /08/12)

PARAMETER AND FILTER SUMMARY REPORT

Field: /data/pase/pcmcmusk-01/dfs4302.prm
LOGGING MODE: DRILLING DIRECTION: DOWN
TOP DEPTHS: 65.318 m BOTTOM DEPTHS: 1933.270 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
GR	FILTER ()	median (1)		TOP	BOTTOM
Y AXIS CALIPER	FILTER ()	median (1)		"	"
	FILTER (.X)	median (1)		"	"
	FILTER (.Y)	median (1)		"	"
DT24	FILTER ()	median (1)		"	"
TENSION	FILTER ()	median (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
CASING + BOREHOLE & CEMENT VOLUME	CASING O.D.	177.800	mm	TOP	BOTTOM
BIT SIZE	BIT SIZE	222.000	mm	"	"

ACOUSTIC POROSITY

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)
DELTA T CURVE SELECTION	CURVE SELECTION	first arrival		TOP BOTTOM

ACOUSTIC PICK CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
DELTA-T REJECTION RANGE	REJECTION Dfactn	131	us/m	TOP	BOTTOM
	REJECTION Dfmax	591	us/m	"	"
FIRST ARRIVAL PICK (SUB 85.6)	SEARCH START OFFSET (xfs21*)	0	us	"	"
	SEARCH START OFFSET (xfs22*)	0	us	"	"
	SEARCH START OFFSET (xfs23*)	0	us	"	"
	SEARCH START OFFSET (xfs24*)	0	us	"	"
FIRST ARRIVAL PICK (SUB 85.9)	SEARCH WINDOW LENGTH	1213	us	TOP	1893.757
		972	us	1893.757	1868.855
		888	us	1868.855	1873.269
		888	us	1873.269	1877.684
		888	us	1877.684	1882.098
		1000	us	1882.098	BOTTOM
	THRESHOLD FACTOR	0.30		TOP	BOTTOM
	THRESHOLD MINIMUM (xfs21*)	150		1868.855	1873.269
		150		1873.269	1877.684
		150		1877.684	1882.098
		150		1882.098	BOTTOM
	THRESHOLD MINIMUM (xfs22*)	150		TOP	1868.855
		150		1868.855	1873.269
		150		1873.269	1877.684
		150		1877.684	1882.098
		150		1882.098	BOTTOM
	THRESHOLD MINIMUM (xfs23*)	150		TOP	1868.855
		150		1868.855	1873.269
		150		1873.269	1877.684
		150		1877.684	1882.098
		150		1882.098	BOTTOM
	THRESHOLD MINIMUM (xfs24*)	150		TOP	1868.855
		150		1868.855	1873.269
		150		1873.269	1877.684
		150		1877.684	1882.098
		150		1882.098	BOTTOM
	E3 THRESHOLD	OFF		TOP	BOTTOM

ACOUSTIC QUALITY CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)
CYCLE SKIP LIMIT	CYCLE SKIP LIMIT	100	us	TOP BOTTOM

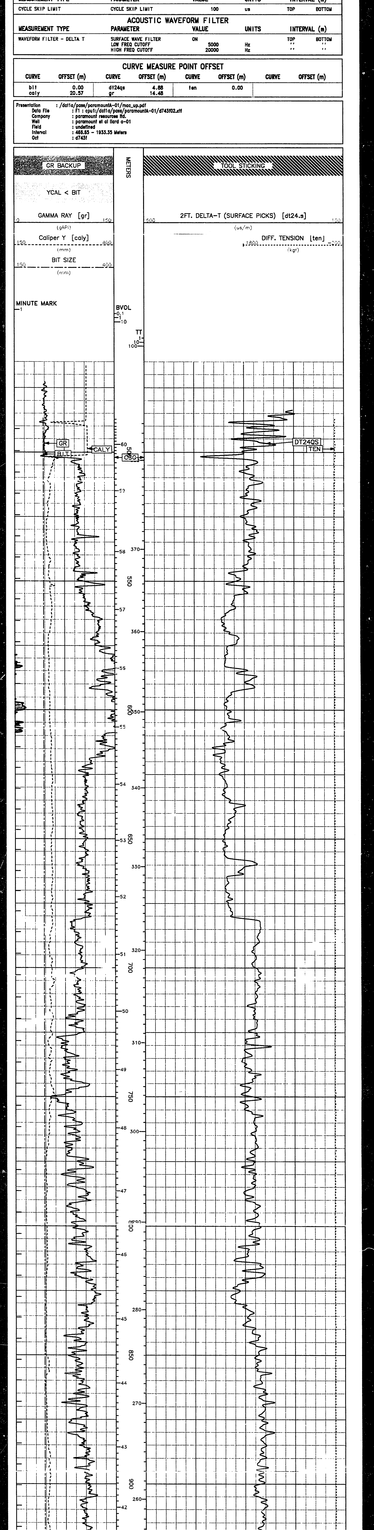
ACOUSTIC WAVEFORM FILTER

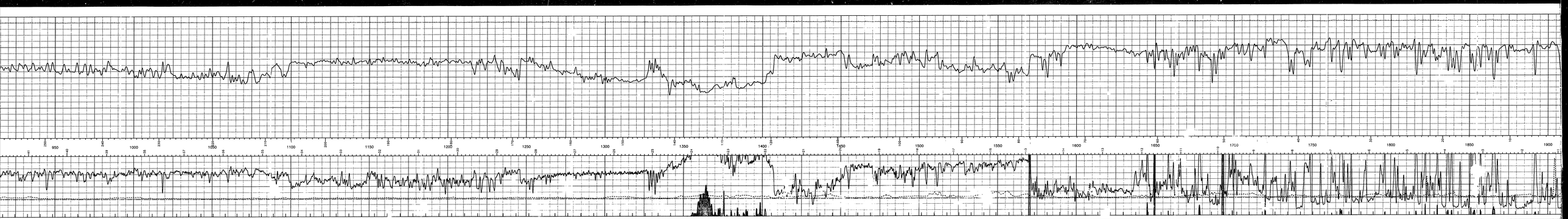
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
WAVEFORM FILTER - DELTA T	SURFACE WAVE FILTER	ON		TOP	BOTTOM
	LOW FREQ CUTOFF	5000	Hz	"	"
	HIGH FREQ CUTOFF	20000	Hz	"	"

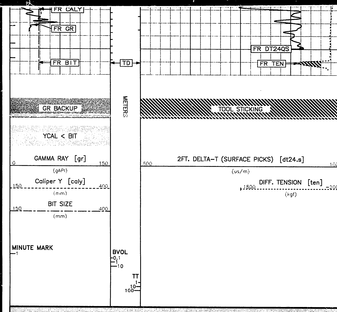
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	dt24a*	4.88	ten	0.00		
cal y	20.57	gr	14.48				

Presentation : /data/pase/pcmcmusk-01/nav_up.pdf
Data file : /f1:/ops1/data/pase/pcmcmusk-01/dfs4302.dfl
Company : permanent resource NL
Well : permanent #1 at 0.0 m-01
Field : undefined
Interval : 468.83 - 1933.35 Meters
Cal : dfs4




950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1700
1750
1800
1850
1900



MAIN PASS - 100-300 DELTA T SCALE

Release:5.1 Nc: 18, ::::

Fileive 2.27 Cplot /08/12 Fri Mar 12 09:32:49 1999
Progm /main/46 Pdt_Cpg /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/pam/paramount-01/dt43202.pre
TOP DEPTH: 485.958 m BOTTOM DEPTH: 1933.270 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
GR	FILTER ()	medium (1)		**	**
Y AXIS CALIPER	FILTER ()	medium (1)		**	**
	FILTER (,a)	medium (1)		**	**
	FILTER (,t)	medium (1)		**	**
DT24	FILTER ()	medium (1)		**	**
TENSION	FILTER ()	medium (1)		**	**

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	177.800	mm	TOP	BOTTOM
BIT SIZE	BIT SIZE	222.000	mm	**	**

ACOUSTIC POROSITY

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
DELTA T CURVE SELECTION	CURVE SELECTION	first arrival		TOP	BOTTOM

ACOUSTIC PICK CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
DELTA-T REJECTION RANGE	REJECTION STATIC	131	us/m	TOP	BOTTOM
	REJECTION RANGE	591	us/m	**	**
FIRST ARRIVAL PICK (SUB #3,4)	SEARCH START OFFSET (xfs21*)	0	us	**	**
	SEARCH START OFFSET (xfs22*)	0	us	**	**
	SEARCH START OFFSET (xfs23*)	0	us	**	**
	SEARCH START OFFSET (xfs24*)	0	us	**	**
FIRST ARRIVAL PICK (SUB #3,4)	SEARCH WINDOW LENGTH	1016	us	1838.737	1893.737
		1016	us	1838.737	1893.737
		1016	us	1868.585	1898.403
		1016	us	1868.585	1898.403
		1016	us	1955.823	1955.823
		1000	us	1893.529	DITTO"
	THRESHOLD FACTOR	0.50		TOP	BOTTOM
	THRESHOLD MINIMUM (xfs21*)	100		1838.737	1893.737
		100		1868.585	1898.403
		93		1955.823	1955.823
		93		1893.529	DITTO"
	THRESHOLD MINIMUM (xfs22*)	100		TOP	BOTTOM
		100		1838.737	1893.737
		100		1868.585	1898.403
		93		1955.823	1955.823
		93		1893.529	DITTO"
	THRESHOLD MINIMUM (xfs23*)	100		TOP	BOTTOM
		100		1838.737	1893.737
		100		1868.585	1898.403
		93		1955.823	1955.823
		93		1893.529	DITTO"
	THRESHOLD MINIMUM (xfs24*)	100		TOP	BOTTOM
		100		1838.737	1893.737
		100		1868.585	1898.403
		93		1955.823	1955.823
		93		1893.529	DITTO"
	E3 THRESHOLD	OFF		TOP	BOTTOM

ACOUSTIC QUALITY CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
CYCLE SKIP LIMIT	CYCLE SKIP LIMIT	100	us	TOP	BOTTOM

ACOUSTIC WAVEFORM FILTER

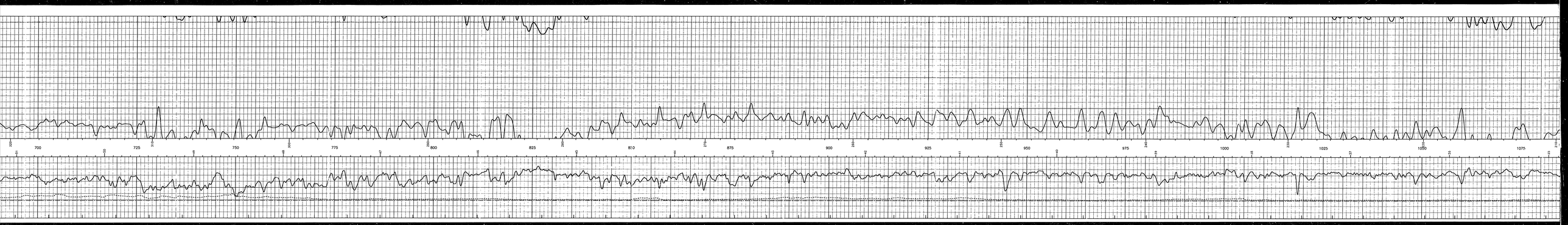
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
WAVEFORM FILTER - DELTA T	SURFACE WAVE FILTER	On		TOP	BOTTOM
	LOW FREQ CUTOFF	5000	Hz	**	**
	HIGH FREQ CUTOFF	20000	Hz	**	**

CURVE MEASURE POINT OFFSET

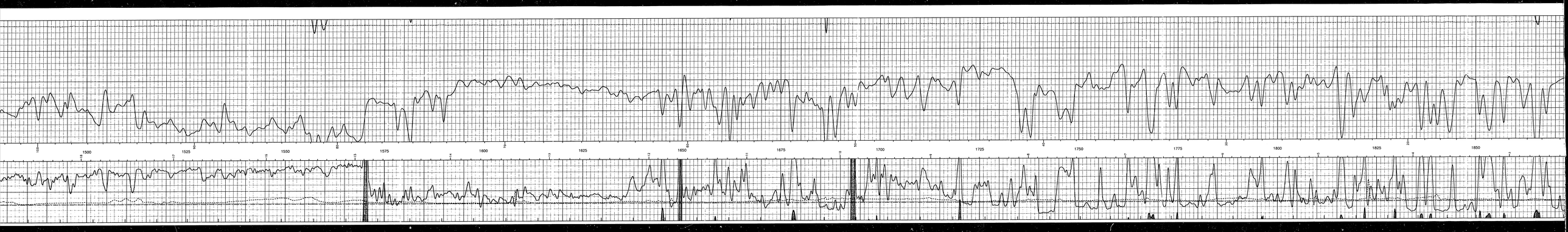
CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	dt24qs	4.88	ten	0.00		
caly	20.37	gr	16.46				

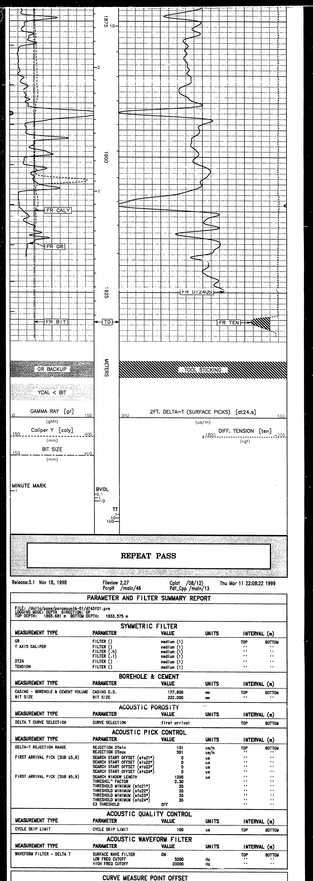
Presentation : /data/pam/paramount-01/mn_main.pdf
Data File : (1) c:\pdt\data\pam\paramount-01\dt43202.elf
Company : paramount oil company
Well : paramount oil field 0-01
Field : undefined
Interval : 485.00 - 1933.35 Meters
Cut : dt43

GR BACKUP
YCAL < BIT
GAMMA RAY [gr]
Caliper Y [caly]
BIT SIZE
MINUTE MARK
BVOL
TT
MAIN PASS
2FT. DELTA-T (SURFACE PICKS) [dt24.s]
DIFF. TENSION [ten]
FR CALY
FR GR
FR BIT
TD
FR DT24QS
FR TEN


700
725
750
775
800
825
850
875
900
925
950
975
1000
1025
1050
1075


1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
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1450
1475


1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825
1850



REPEAT PASS

Release:5.1 Nov 18, 1998 Filetime:3.27 Color:/DB/12) Thu Mar 11 22:08:22 1999
Format: /main/48 Plot_Opt:/main/1)

PARAMETER AND FILTER SUMMARY REPORT

FILE: /DATA/jobs/pennmark-01/4258201.pre
JOB NO: 4258201 DATE: 03/11/99
TOP DEPTH: 1660.581 m BOTTOM DEPTH: 1655.575 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
	FILTER 1	medium (1)		TOP	BOTTOM
Y AXIS CALIPER	FILTER 2	medium (1)		"	"
	FILTER 3 (A)	medium (1)		"	"
DT24	FILTER 4 (T)	medium (1)		"	"
TENSION	FILTER 5	medium (1)		"	"
	FILTER 6	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	177.800	mm	TOP	BOTTOM
BIT SIZE	BIT SIZE	222.200	mm	"	"

ACOUSTIC POROSITY

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
DELTA-T CURVE SELECTION	CURVE SELECTION	first arrival		TOP	BOTTOM

ACOUSTIC PICK CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
DELTA-T REJECTION RANGE	REJECTION DT24+	131	us/ft	TOP	BOTTOM
	REJECTION DT24-	591	us/ft	"	"
FIRST ARRIVAL PICK (SUB 65,6)	SEARCH START OFFSET (ATS2P)	0	us	"	"
	SEARCH START OFFSET (ATS3P)	0	us	"	"
	SEARCH START OFFSET (ATS4P)	0	us	"	"
FIRST ARRIVAL PICK (SUB 65,6)	SEARCH WINDOW (ATS2P)	1000	us	"	"
	THRESHOLD MINIMUM (ATS1P)	35		"	"
	THRESHOLD MINIMUM (ATS2P)	35		"	"
	THRESHOLD MINIMUM (ATS3P)	35		"	"
	THRESHOLD MINIMUM (ATS4P)	35		"	"
	ATS THRESHOLD	OFF		"	"

ACOUSTIC QUALITY CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
CYCLE SKIP LIMIT	CYCLE SKIP LIMIT	100	us	TOP	BOTTOM

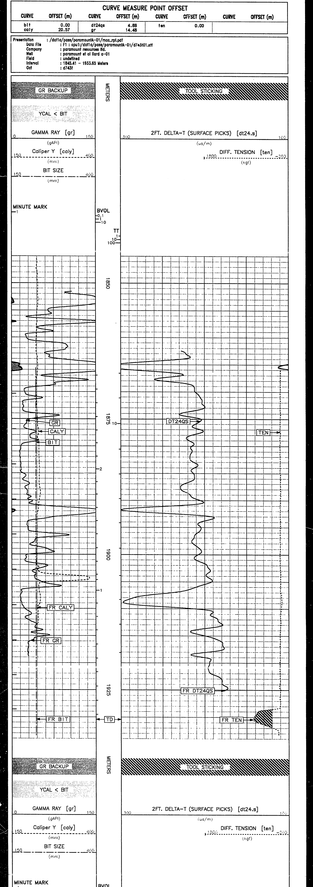
ACOUSTIC WAVEFORM FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
WAVEFORM FILTER - DELTA T	WAVEFORM FILTER	ON		TOP	BOTTOM
	LOW FREQ CUTOFF	5000	Hz	1660.581	1655.575
	HIGH FREQ CUTOFF	20000	Hz	"	"

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
BIT SIZE	0.00	RTEMP	4.88	TEN	6.00		
GR	20.57	RT	14.48				

Parameters: /DATA/jobs/pennmark-01/tool_params.out
Data File : /DATA/jobs/pennmark-01/4258201.edt
Elements : 2 passes,all elements #4
Passes : passes used: #1 of field = #1
Field : 1660.581 - 1655.575 MEASURED FROM
Depth : 1 of 421



CALIBRATION / VERIFICATION SUMMARY

Source File: /data/jobs/pennmark-01/4258.tpl

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 4208XA 644630 DATE/TIME PERFORMED: Wed Mar 03 11:38:25 1999

UNIT #: 388078 HL6544

	SMALL RING LARGE RING (#)	MULT	ADD	SMALL RING LARGE RING (mm)	
CALIPER	5656.13	9200.6	0.026400	42.925600	203.000	304.800

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 4208XA 644630 DATE/TIME PERFORMED: Thu Mar 11 13:18:28 1999

UNIT #: 388078 HL6544

	I.D. (#)	MULT	ADD	I.D. (mm)	
CALIPER	9901.6	0.026400	42.925600	320.400	

CAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 4208XA 644630 DATE/TIME PERFORMED: Thu Mar 11 15:53:08 1999

UNIT #: 388078 HL6544

	I.D. (#)	MULT	ADD	I.D. (mm)	
CALIPER	9960.8	0.026400	42.925600	320.480	

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Fri Feb 19 14:48:25 1999

UNIT #: 388078 HL6544 CALB JIG #: 47020C Dec500

	BACKGROUND CALIBRTE CN (cts/s)	CE SHIFT (cts/s)	MULT	BACKGROUND CALIBRTE CN (gAPI)	CALIBRTE (gAPI)
GR	214.57	1109.80	895.30	0.1497	33.940	183.940	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Thu Mar 11 14:54:57 1999

UNIT #: 388078 HL6544 CALB JIG #: 47020C Dec500

	BACKGROUND CALIBRTE CN (cts/s)	MULT	ADD	CALIBRTE CN (gAPI)
GR	214.57	1109.80	895.30	0.1497	33.940	183.940

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Thu Mar 11 18:54:57 1999

UNIT #: 388078 HL6544 CALB JIG #: 47020C Dec500

	BACKGROUND CALIBRTE CN (cts/s)	MULT	ADD	CALIBRTE CN (gAPI)
GR	214.57	1109.80	895.30	0.1497	33.940	183.940

GR AFTER LOG VERIFICATION SUMMARY

[illegible]

Baker Atlas

BAKER HUGHES
INTEQ

FIELD
PROSPECT
LOCATION
STATE

BEST
COPY
ON FILE

Baker Atlas

BAKER HUGHES

N.E.B. COPY

TRUE VERTICAL DEPTH
MULTIPOLE ARRAY ACOUSTILOG
GAMMA RAY LOG
CALIPER LOG

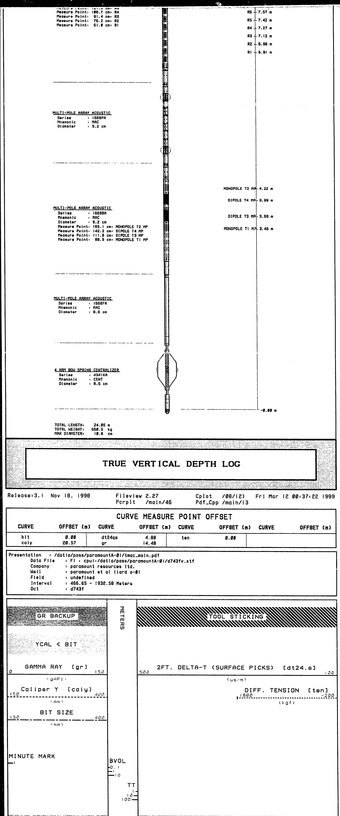
FILE NO:	
API NO:	
Ver. 3.19	

COMPANY	PARAMOUNT RESOURCES LTD.
WELL	PARAMOUNT ET AL LIARD A-01
FIELD	UNDEFINED
PROVINCE	NORTHWEST TERRITORIES
LOCATION:	LAT 60°05' 18" N LONG 123°56' 15" W
OTHER SERVICES	MSD-GR ZDL-CN-GR-XY MAC-GR-CAL
LOGGING UNIT NUMBER	CUL
LOGGING ENGINEER	LOGSTAR

PERMANENT DATUM	G.L.	ELEVATION	517.2 M
LOG MEASURED FROM	K.B.	ABOVE P.D.	5.5 M
DRILL. MEAS. FROM	KELLY BUSHING		

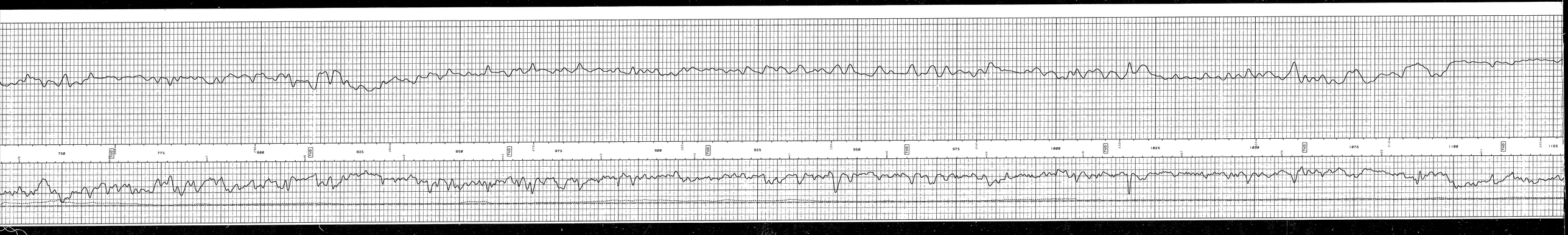
ELEVATIONS	
KB	522.7 M
DF	
GL	517.2 M

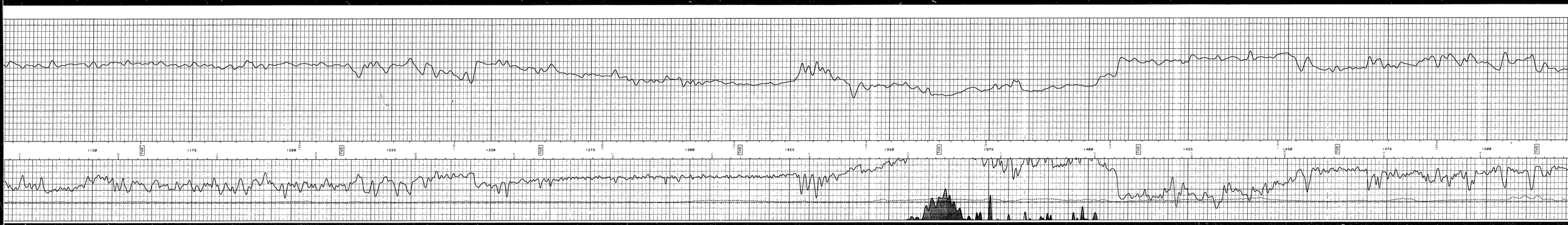
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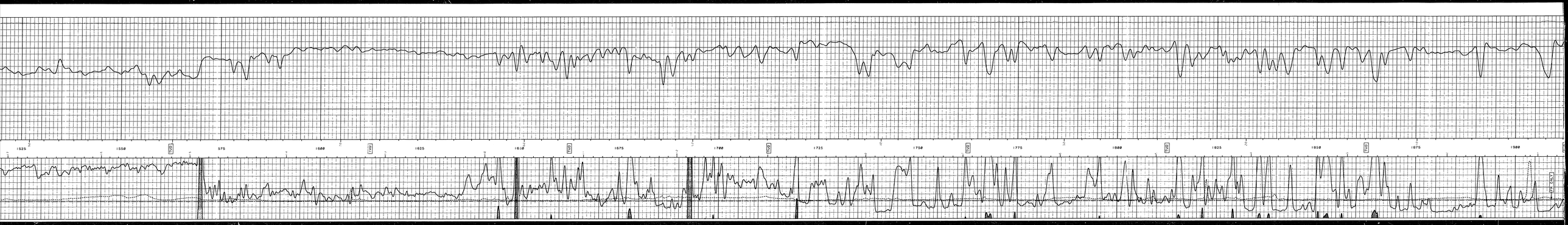


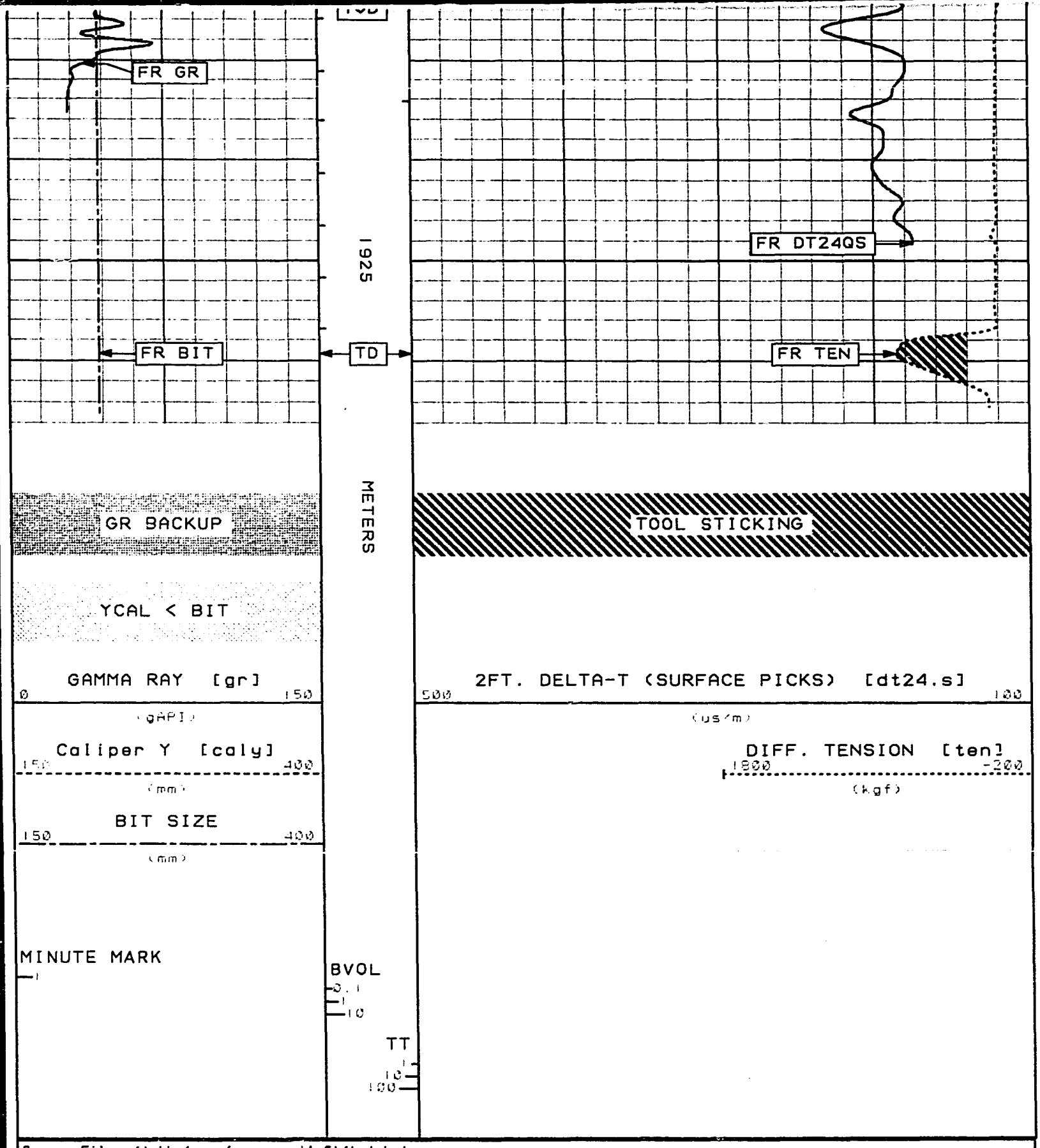
TRUE VERTICAL DEPTH LOG

Release=3.1 Nov 18, 1998 Fileview 2.07 Plotsys /usr/ Plotsw /bin/x Plotdef /usr/ Plotcap /home/ Plotdev /dev/ Plotlib /usr/ Plotfont /usr/ Plotmode 1 Plotpen 1 Plotcolor 1 Plotdash 1 Plotwidth 1 Plotsize 1 Plotscale 1 Plotorient 1 Plotoffset 1 Plotlog 1 Plotdebug 1 Plotverbose 1 Plotquiet 1 Plotnoclip 1 Plotnoscale 1 Plotnoorient 1 Plotnooffset 1 Plotnolog 1 Plotnodebug 1 Plotnoverbose 1 Plotnoquiet 1 Plotnonoclip 1 Plotnonoscale 1 Plotnon


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1675
1700
1725
1750
1775
1800
1825
1850
1875
1900
CM5
CM5
CM5



Source File: /data/pass/paramountA-01/tvd.tvd

```
depth,azimuth,dev,tvd
503.00,0.00,0.00,503.00
517.09,286.10,1.30,517.09
646.46,263.70,1.20,646.43
788.39,274.70,1.00,788.33
925.23,282.00,0.80,925.16
1061.40,266.70,1.00,1061.31
1182.34,281.90,1.30,1182.22
1317.75,286.10,1.90,1317.58
1451.15,283.00,1.10,1450.93
1586.73,328.90,1.70,1586.48
1637.93,316.10,3.20,1637.63
1643.79,318.00,3.90,1643.48
1653.38,319.60,3.50,1653.06
1663.04,322.20,3.80,1662.70
1672.51,319.30,4.10,1672.14
1682.10,312.90,4.00,1681.71
1691.75,306.40,3.70,1691.34
1701.26,303.20,3.30,1700.83
1710.91,299.30,2.80,1710.47
1720.52,295.50,2.50,1720.07
1730.15,296.30,2.40,1729.69
1739.76,294.00,2.50,1739.29
1749.36,294.50,2.60,1748.88
1759.00,295.70,2.80,1758.51
1768.46,295.50,2.90,1767.96
1777.98,293.50,2.90,1777.47
1787.53,290.60,2.70,1787.03
1797.73,281.00,2.60,1797.19
1807.49,276.00,2.70,1806.94
1817.12,273.40,3.10,1816.56
1826.69,273.70,3.40,1826.11
1836.27,273.30,3.60,1835.68
1845.87,272.00,3.40,1845.26
1855.33,271.00,3.30,1854.78
1864.88,271.80,3.20,1864.24
1874.48,272.20,3.00,1873.82
1884.05,275.10,2.90,1883.38
1893.63,276.40,3.00,1892.95
1903.23,278.30,3.20,1902.52
1935.00,284.50,3.85,1934.24
```

BAKER HUGHES

Baker Atlas

COMPANY	PARAMOUNT RESOURCES LTD.
WELL	PARAMOUNT ET AL LIARD A-01
FIELD	UNDEFINED
PROVINCE	NORTHWEST TERRITORIES

FILE NO:

API NO:

LOCATION:

WID:1858
A01 60DEG 10' 123DEG 15'

ELEVATIONS
KB 522.7 M
DF
GL 517.2 M

DATE 11-MAR-1999

N.E.B. COPY

BAKER HUGHES

Baker Atlas

MAC S/W

Multipole Array Acoustilog

MULTIPOLE ARRAY ACOUSTILOG℠
GAMMA RAY LOG
RESULTS

COMPANY PARAMOUNT RESOURCES LTD.
WELL PARAMOUNT ET AL LIARD A-01
FIELD UNDEFINED
PROVINCE N.W.T. WELL LIC. WID-1858
UNIQUE IDENTIFIER N/A
LSD -- SEC -- TWP -- RGE --
ELEVATION:
KB 522.7 M DF GL 517.2 M
DATE 14 MARCH 1999 LAC 11149

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION, WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES OR EXPENSE INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES. ALL INTERPRETATIONS ARE SUBJECT TO OUR STANDARD TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE. NO INTERPRETATION MADE BY ANY OF OUR EMPLOYEES IS TO BE RELIED UPON AS REPRESENTATIONS OR WARRANTIES UNLESS CONFIRMED IN WRITING BY AN OFFICER OF BAKER ATLAS. ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES IS TO BE SUBSTANTIATED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD

BIT SIZE	FROM	TO

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO

REMARKS

Run 1: Time stopped circulation!-apr-1999, 09:00

Time slogged and presentations as per customers request.
-all scales and presentations as per customers request.
-mac recorded up presented 50m-100 usm/m upper presentation (6-ec).
-mac recorded up presented 50m-100 usm/m main pass (6-ec).

cmeuro.plots.m.email

Compressional slowness computed from acoustic data set.
Shear slowness computed from dipole data set.

Log Analyst: A.M. Logan

Run 2.

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	MAC	99A409	10983	FREE
1	1	CAL	4XB904	84689	1-CALIPER
1	1	GRM	4XB904	84689	FREE
1	1	ATB	3XLMA	10818	FREE
1	1	SDS	3XLMA	10818	FREE
1	1	ACC	1EX00	10174	FREE
1	1	ACC	1EX00	10174	KNUCKLE JOINT
1	1	CAL	1EX00	10174	FREE
1	1	CNT	4XA178	17381	CENTRALIZER
1	1	MAC	1EX00	10174	CENTRALIZER
1	1	ACC	1EX00	10174	CENTRALIZER
1	1	MAC	1EX00	10174	BOW SPRING
1	1	MAC	1EX00	10174	CENTRALIZER
1	1	MAC	1EX00A	17218	FREE
1	1	CNT	4XA178	17381	CENTRALIZER

COMPRESSIONAL AND SHEAR SLOWNESS

Shear Slowness [dts] (us/m) 180 / 280
Compressional Slowness [dtc] (us/m) 180 / 280
Density [rhob] (g/cc) 1.95 / 2.95

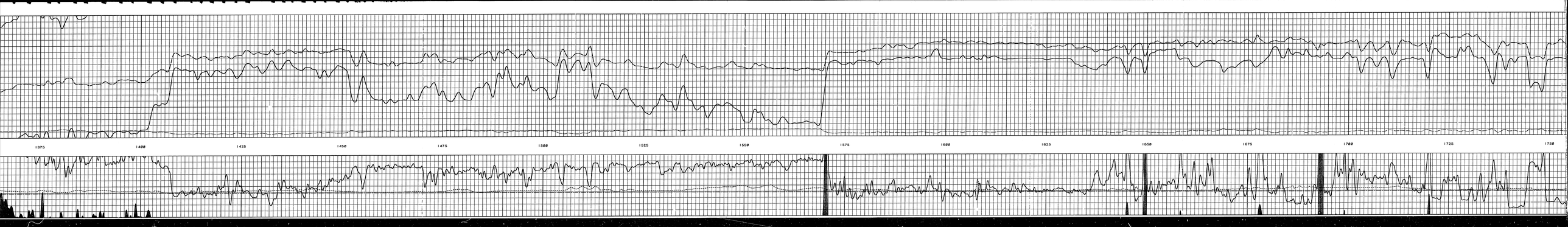
METERS 475 500 525 550 575 600 625 650

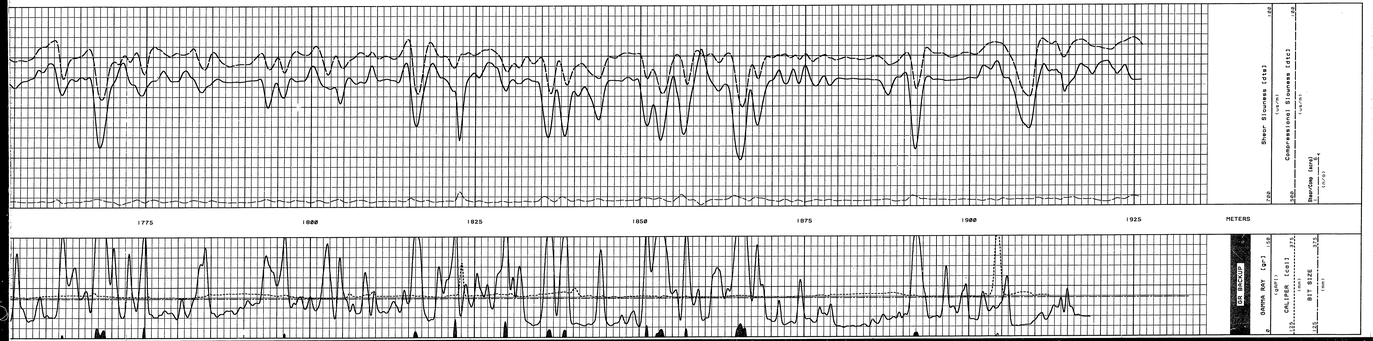
GR BACKUP

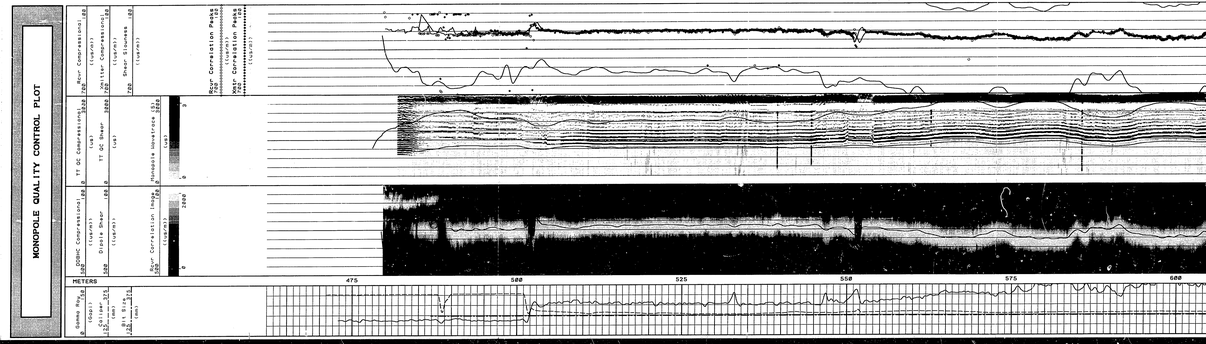
GAMMA RAY [gr] (gAPI) 0 / 150
CALIPER [cal] (inches) 125 / 375
Bit Size (mm) 125 / 375

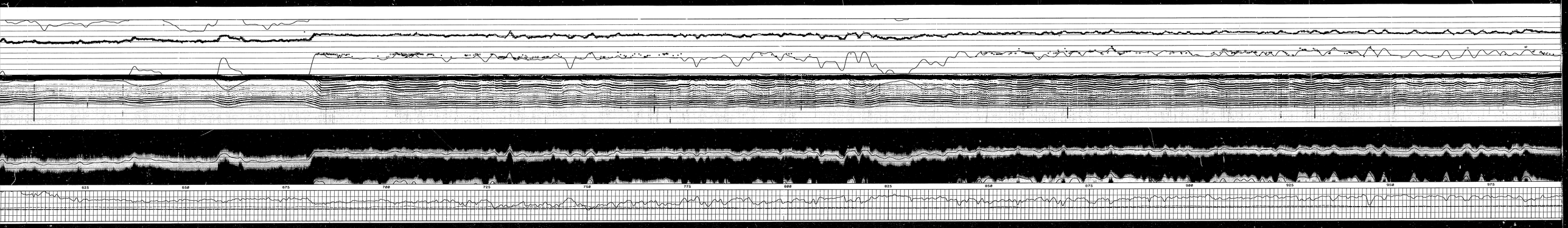

675
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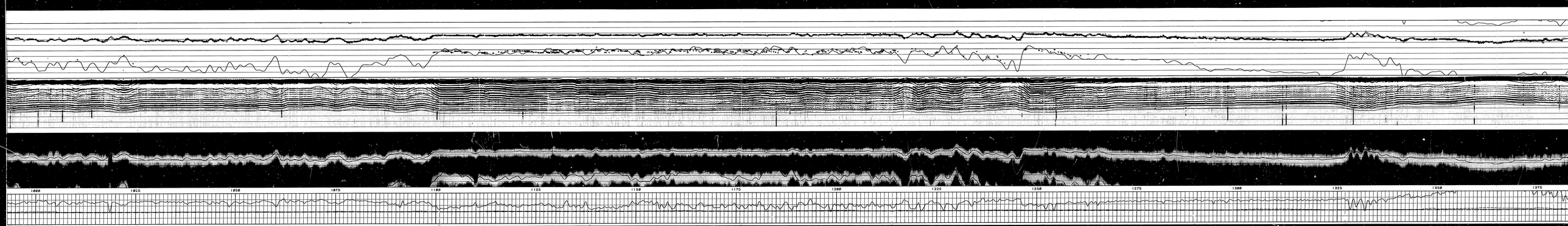
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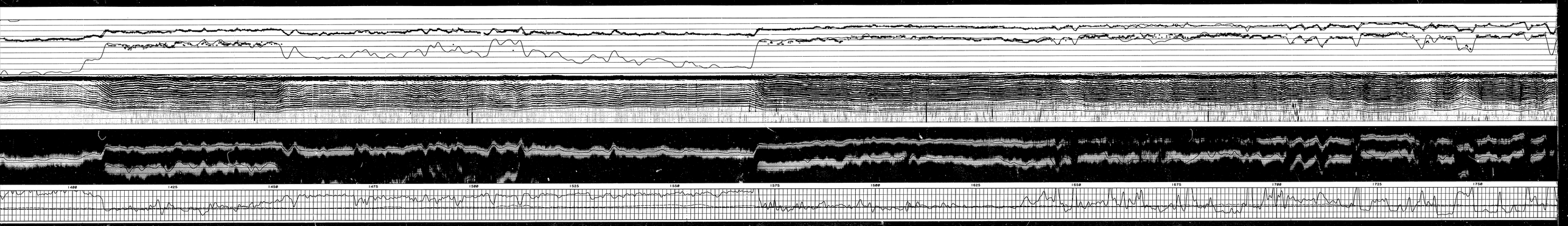

1375
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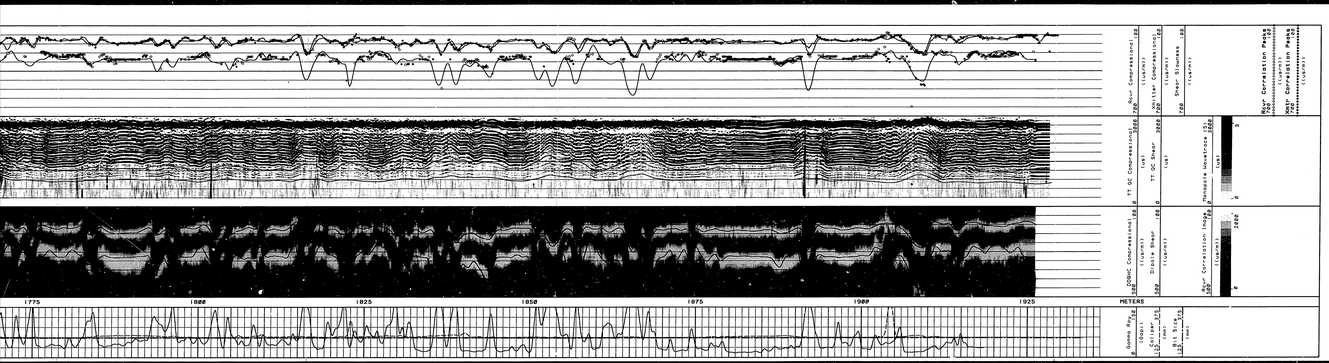

Shear Stiffness (psi)
Compressional Slowness (usec/ft)
Shear Slowness (usec/ft)
1775
1800
1825
1850
1875
1900
1925
METERS
GR BACKUP
GAMMA RAY (gAPI)
CAL (inch)
BIT SIZE (inch)


MONOPOLE QUALITY CONTROL PLOT
Four Compressional (usec/ft)
Four Shear Slowness (usec/ft)
Four Correlation Peaks
Four Shear Stiffness (psi)
Four Compressional (usec/ft)
Four Shear Slowness (usec/ft)
Four Correlation Peaks
TT DC Compressional (us)
TT DC Shear (us)
Poisson's Ratio (p)
Four Compressional (usec/ft)
Four Shear Slowness (usec/ft)
Four Correlation Image
Gamma Ray (GAPI)
Cal (inch)
Bit Size (inch)
475
500
525
550
575
600
METERS

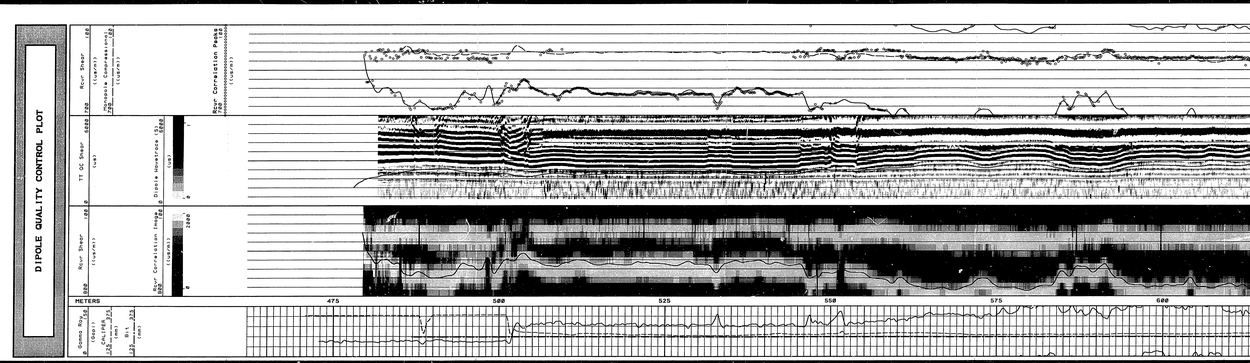

625
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975

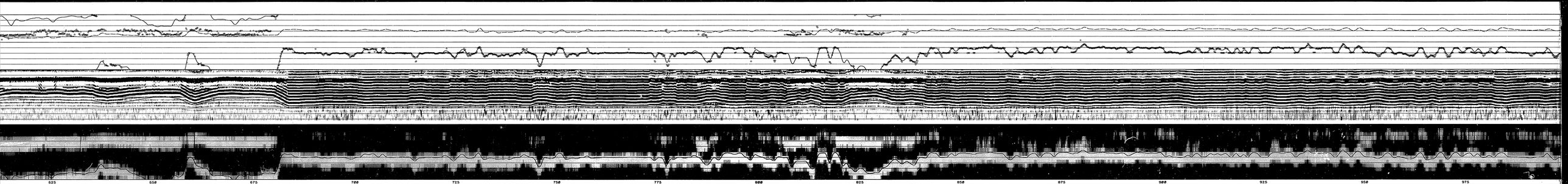

1000
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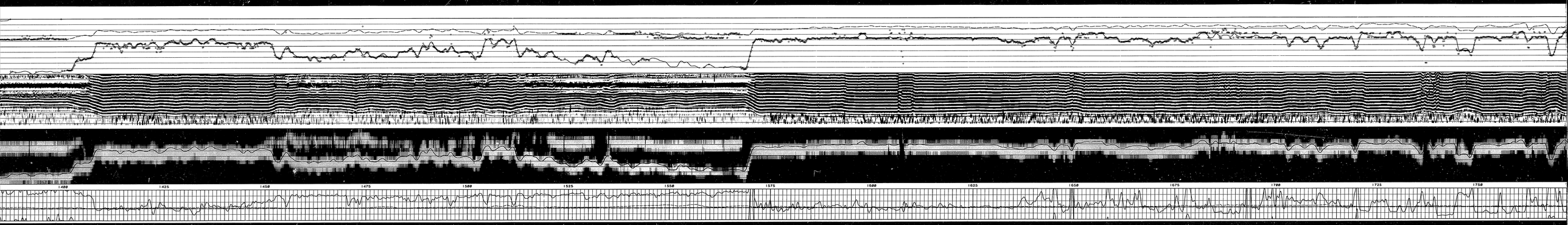


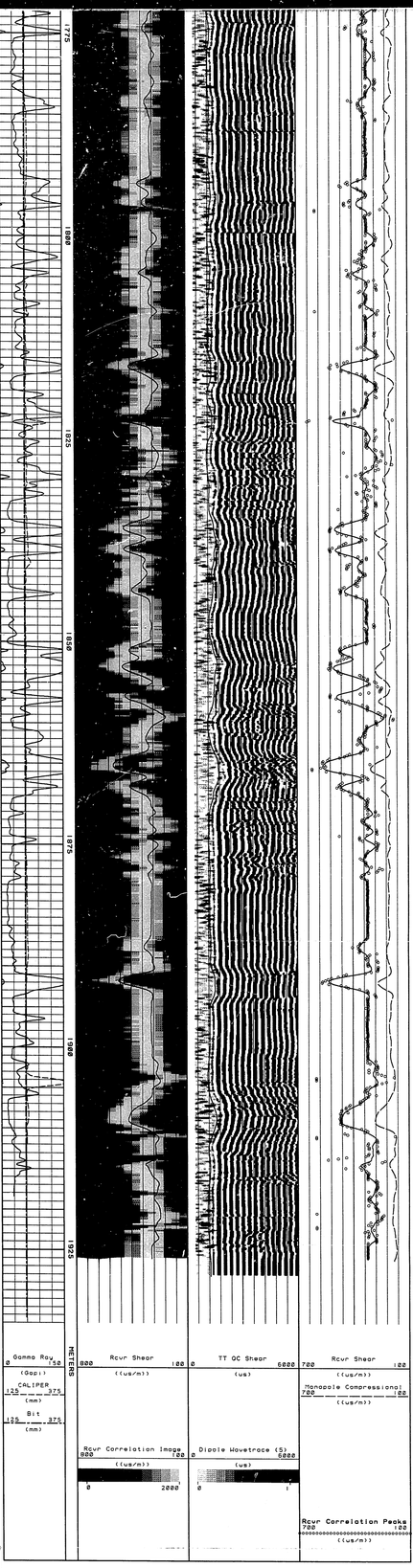
DIPOLE QUALITY CONTROL PLOT




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1400
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1675
1700
1725
1750



Baker Atlas

COMPANY	PARAMOUNT RESOURCES LTD.		FILE NO: 11149
WELL	PARAMOUNT ET AL LIARD A-81		
FIELD	UNDEFINED		API NO:
PROVINCE	N.W.T.		
LOCATION:		ELEVATIONS	N/A
W10:1858		KB 522.7 M	
A81 60DEG 18' 123DEG 15'		DF	
--		GL 517.2 M	
SEC --	TWP -- RGE --	DATE 11-MAR-1999	

N.E.B. COPY

BAKER HUGHES

MULTIPOLE ARRAY ACOUSTILOG®
GAMMA RAY LOG
CALIPER LOG

Baker Atlas

FILE NO:	COMPANY	PARAMOUNT RESOURCES LTD.
API NO:	WELL	PARAMOUNT ET AL LIARD A-81
	FIELD	UNDEFINED
Ver 2.19	PROVINCE	NORTHWEST TERRITORIES
	LOCATION: W1N-1958 NR: 68958 18° 123933 15"	OTHER SERVICES: DEN-GR CDL-CN-GR-WF

PERMANENT DATUM	G.L.	ELEVATION 517.3 M	LOG MEASURED FROM K.B. 5.5 M ABOVE P.D.
LOG MEASURED FROM			ELEVATIONS: KB 522.7 M, DF, GL 517.3 M
DRILL MEAS. FROM	KELLY BUSHING		

DATE	18-MAR-1999		
RUN	TRIP	1	1
SERVICE ORDER	980849		
DEPTH DRILLER	2848.4 M		
DEPTH LOGGER	2844.0 M		
BOTTOM LOGGED INTERVAL	2841.2 M		
TOP LOGGED INTERVAL	1222.0 M		
CASING-DRILLER	193.7 MM @ 1183.8 M		@
CASING LOGGER	NOT LOGGED		
BIT SIZE	222 MM		
TYPE OF FLUID IN HOLE	UNWEIGHTED GEL CHEM		
DENSITY / VISCOSITY	1070 SG/CP	AT S	
PH / FLUID LOSS	-	-	
SOURCE OF SAMPLE	FLOWLINE		
RM AT MEAS. TEMP.	-	@ -	@
RMF AT MEAS. TEMP.	-	@ -	@
RMC AT MEAS. TEMP.	-	@ -	@
SOURCE OF RMF / RMC	- / -		
RM @ BHT	-	@ -	@
TIME SINCE CIRCULATION	5.5 HRS		
MAX. RECORDED TEMP.	90 @ DEGC		
EQUIP. NO. LOCATION	4135AH	0-P-	
RECORDED BY	R.KAMYCZKA/D.SPRAY		
WITNESSED BY	M.CLATTENBURG		

IN-HOLE SUPERVISION OF CORE AND SPECIFIED WELL SITE SERVICES THE RESULT OF THIS A MAY CONTAIN INFORMATION THAT WILL ALLOW/ENABLE AT ANY SPECIFIED RATE ACCEPTANCE FROM ELECTRICAL OR OTHER SOURCES. THIS INFORMATION IS CONFIDENTIAL AND IS THE PROPERTY OF BAKER ATLAS. AUTHORIZATION TO RELEASE OR DISCLOSE THE CONTENTS OR DISCLOSURE TO THE CONTENTS RESULTING FROM ANY INTERPRETATION

REMARKS

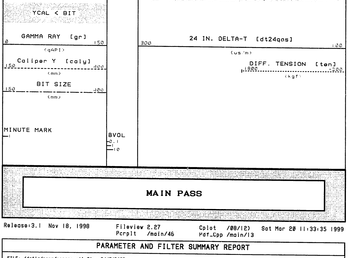
RUN 1 TRIP 1 - Time Logged Formation 20-MAR-99 21:00

- 1) Run to bottom with log (run#1).
- 2) Log main pass (run#1).
- 3) Re-standard at 2841.2M (main).

(Please advise, R.Clark)

EQUIPMENT DATA

RUN	TRIP	MATRIX NO.	LOCATION	TYPE
1	1	4135AH	0-P-	MAIN
		4135AH	0-P-	MAIN
		4135AH	0-P-	MAIN



Release:3.1 Nov 18, 1998 Fileview 2.27 Cplot /PB/12) Sat Mar 20 11:33:35 1999
Perpit /main/46 Pdf_Cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/apse/parmonuk4-8/run2/d7474383.pre
LOGGING MODE: DEPTH; DIRECTION: up
TOP DEPTH: 1890.744 m BOTTOM DEPTH: 2840.561 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
GR	FILTER 1)	medium (1)		"	"
Y AXIS CALIPER	FILTER 2)	medium (1)		"	"
	FILTER 2.5)	medium (1)		"	"
	FILTER 3)	medium (1)		"	"
DT24	FILTER 4)	medium (1)		"	"
TENSION	FILTER 5)	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	177.800	mm	TOP	BOTTOM
BIT SIZE	BIT SIZE	222.000	mm	"	"

ACOUSTIC PICK CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
DELTA-T REJECTION RANGE	REJECTION DTmin	131	us/m	TOP	BOTTOM
	REJECTION DTmax	591	us/m	"	"
FIRST ARRIVAL PICK (SUB #5.0)	SEARCH START OFFSET (sfs0[4])	0	us	"	"
	SEARCH START OFFSET (sfs0[2])	0	us	"	"
	SEARCH START OFFSET (sfs0[3])	0	us	"	"
	SEARCH START OFFSET (sfs0[4])	0	us	"	"
	SEARCH WINDOW LENGTH	1200	us	"	"
	THRESHOLD FACTOR	0.50		"	"
	THRESHOLD MINIMUM (sfs0[1])	52		TOP	2804.329
		52		2804.329	BOTTOM
	THRESHOLD MINIMUM (sfs0[2])	52		TOP	2804.177
		52		2804.177	BOTTOM
	THRESHOLD MINIMUM (sfs0[3])	52		TOP	2804.854
		52		2804.854	BOTTOM
	THRESHOLD MINIMUM (sfs0[4])	52		TOP	2823.572
		52		2823.572	BOTTOM
	LO THRESHOLD OFF			TOP	BOTTOM
FIRST ARRIVAL PICK (SUB #5.0)	SEARCH WINDOW LENGTH	1200	us	"	"
	THRESHOLD FACTOR	0.50		"	"
	THRESHOLD MINIMUM (sfs0[1])	35		"	"
	THRESHOLD MINIMUM (sfs0[2])	35		"	"
	THRESHOLD MINIMUM (sfs0[3])	35		"	"
	THRESHOLD MINIMUM (sfs0[4])	35		"	"
	ES THRESHOLD OFF			"	"

ACOUSTIC QUALITY CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
CYCLE SKIP LIMIT	CYCLE SKIP LIMIT	100	us	TOP	BOTTOM

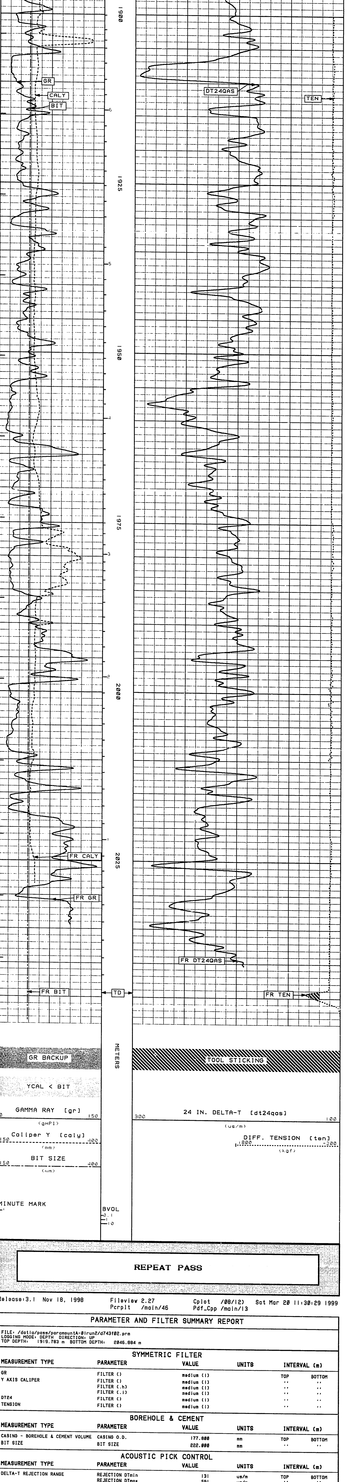
ACOUSTIC WAVEFORM FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
WAVEFORM FILTER - DELTA T	SURFACE WAVE FILTER	ON		TOP	BOTTOM
	LOW FREQ CUTOFF	5000	Hz	"	"
	HIGH FREQ CUTOFF	60000	Hz	"	"

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	dt24qas	4.95	ten	0.00		
caly	19.89	gr	13.72				

Presentation
Plotter file : /data/apse/parmonuk4-8/run2/mac_main.ps
Screen file : /data/apse/parmonuk4-8/run2/d7474383.stf
Company : parmount resources
Well : parmount #1 at third e-d1
Field : undefined
Interval : 1890.80 - 2840.64 Meters
Set : d7421



Release:3.1 Nov 18, 1998 Fileview 2.27 Cplot /PB/12) Sat Mar 20 11:38:29 1999
Perpit /main/46 Pdf_Cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/apse/parmonuk4-8/run2/d7474383.pre
LOGGING MODE: DEPTH; DIRECTION: up
TOP DEPTH: 1910.783 m BOTTOM DEPTH: 2840.864 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
GR	FILTER 1)	medium (1)		"	"
Y AXIS CALIPER	FILTER 2)	medium (1)		"	"
	FILTER 2.5)	medium (1)		"	"
	FILTER 3)	medium (1)		"	"
DT24	FILTER 4)	medium (1)		"	"
TENSION	FILTER 5)	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	177.800	mm	TOP	BOTTOM
BIT SIZE	BIT SIZE	222.000	mm	"	"

ACOUSTIC PICK CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
DELTA-T REJECTION RANGE	REJECTION DTmin	131	us/m	TOP	BOTTOM
	REJECTION DTmax	591	us/m	"	"
FIRST ARRIVAL PICK (SUB #5.0)	SEARCH START OFFSET (sfs0[1])	0	us	"	"
	SEARCH START OFFSET (sfs0[2])	0	us	"	"
	SEARCH START OFFSET (sfs0[3])	0	us	"	"
	SEARCH START OFFSET (sfs0[4])	0	us	"	"
	SEARCH WINDOW LENGTH	1200	us	"	"
	THRESHOLD FACTOR	0.50		"	"
	THRESHOLD MINIMUM (sfs0[1])	52		"	"
	THRESHOLD MINIMUM (sfs0[2])	52		"	"
	THRESHOLD MINIMUM (sfs0[3])	52		"	"

	THRESHOLD MINIMUM (+fs024X)	32				--	--
	THRESHOLD MINIMUM (+fs024Y)	32				--	--
	THRESHOLD MINIMUM (+fs024Z)	32				--	--
	E3 THRESHOLD	OFF				--	--
FIRST ARRIVAL PICK (SUB #5.9)	SEARCH WINDOW LENGTH	1000		us		--	--
	THRESHOLD FACTOR	0.30				--	--
	THRESHOLD MINIMUM (+fs024X)	35				--	--
	THRESHOLD MINIMUM (+fs024Y)	35				--	--
	THRESHOLD MINIMUM (+fs024Z)	35				--	--
	E3 THRESHOLD	OFF				--	--

ACOUSTIC QUALITY CONTROL

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
	CYCLE SKIP LIMIT	100	us	TOP	BOTTOM

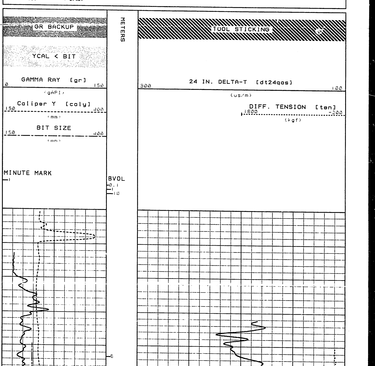
ACOUSTIC WAVEFORM FILTER

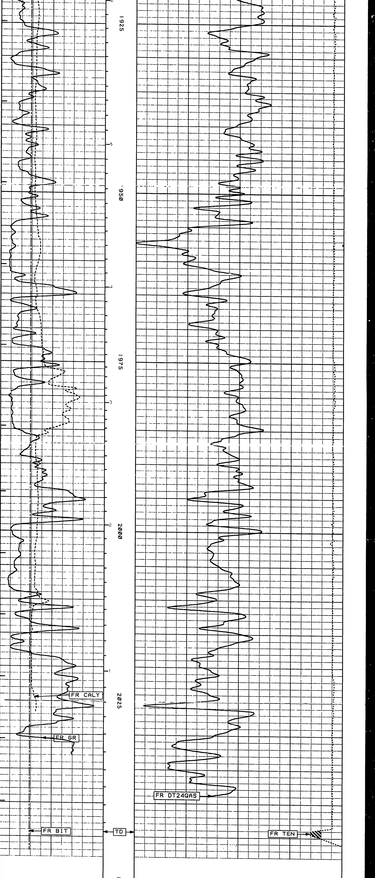
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
WAVEFORM FILTER - DELTA T	SURFACE WAVE FILTER	ON		TOP	BOTTOM
	LOW FREQ CUTOFF	5000	Hz	--	--
	HIGH FREQ CUTOFF	20000	Hz	--	--

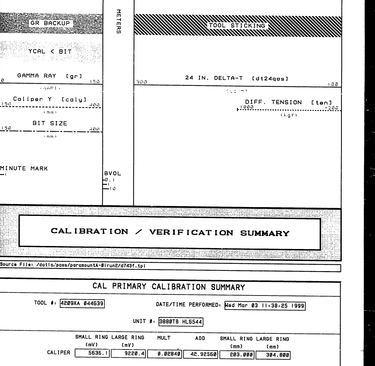
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	dt24aos	4.95	ten	0.00		
ctty	19.80	gr	13.72				

Presentation : /data/pose/paramountA-01run0/mac_rpt.ppf
Data File : FI - ascii:/data/pose/paramountA-01run0/z674382.xtf
Company : paramount et al
Well : paramount et al (lard 2-8)
Field : undefined
Interval : 1500.28 - 2047.84 Meters
Oct : z7431







CALIBRATION / VERIFICATION SUMMARY

Source File: /data/pose/paramountA-01run0/z674371.tpl

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 2829XA 844639 — DATE/TIME PERFORMED: Wed Mar 03 11:38:25 1999
UNIT #: 3888TB HLS544

	SMALL RING LARGE RING (uV)	MULT	ADD	SMALL RING LARGE RING (cm)	(in)
CALIPER	5636.1	9228.4	0.02848	42.92560	283.898	394.588

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2829XA 844639 — DATE/TIME PERFORMED: Sat Mar 06 07:54:25 1999
UNIT #: 3888TB HLS544

	I.D. (uV)	MULT	ADD	I.D. (cm)
CALIPER	18445.8	0.02848	42.92560	399.568

CAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2829XA 844639 — DATE/TIME PERFORMED: Sat Mar 06 07:55:06 1999
UNIT #: 3888TB HLS544

	I.D. (uV)	MULT	ADD	I.D. (cm)
CALIPER	18444.8	0.02848	42.92560	399.575 (15.732) (157.320)

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 3209XA 153174 — DATE/TIME PERFORMED: Fri Feb 19 14:48:25 1999
UNIT #: 3888TB HLS544 CALB JIG #: 4780NK #da559

	BACKGROUND CALBRTN ON (cts/s)	(cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND CALBRTN ON (gAPI)	(gAPI)	CALBRTN (gAPI)
GR	814.51	1189.80	990.3 (99.0 - 99.0)	0.160	35.94	185.94	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 3209XA 153174 — DATE/TIME PERFORMED: Fri Feb 19 14:54:57 1999
UNIT #: 3888TB HLS544 VERI JIG #: 4780NK #da559

	BACKGROUND CALBRTN ON (cts/s)	(cts/s)	MULT	BACKGROUND CALBRTN ON (gAPI)	(gAPI)	DIFF. (gAPI)	(gAPI)
GR	814.67	1192.64	0.160	36.88	184.74	+48.74 (+48.60	+48.88)

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 3209XA 153174 — DATE/TIME PERFORMED: Sat Mar 06 04:19:22 1999
UNIT #: 3888TB HLS544 VERI JIG #: 4780NK #da559

	BACKGROUND CALBRTN ON (cts/s)	(cts/s)	MULT	BACKGROUND CALBRTN ON (gAPI)	(gAPI)	DIFF. (gAPI)	(gAPI)
GR	318.09	483.81	0.160	53.38	181.56	+48.18 (+47.94	+48.42)

GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 3209XA 153174 — DATE/TIME PERFORMED: Sat Mar 06 04:21:56 1999
UNIT #: 3888TB HLS544 VERI JIG #: 4780NK #da559

	BACKGROUND CALBRTN ON (cts/s)	(cts/s)	MULT	BACKGROUND CALBRTN ON (gAPI)	(gAPI)	DIFF. (gAPI)	(gAPI)
GR	321.18	1653.48	0.160	53.91	218.30	+38.30 (+38.16	+38.44)

BAKER HUGHES — Baker Atlas

COMPANY	PARAMOUNT RESOURCES LTD.
WELL	PARAMOUNT ET AL L-(+80 A-8)
FIELD	UNDEFINED
PROVINCE	NORTHWEST TERRITORIES
LOCATION:	
	W10-105B
	60° 08'09 W° 123°09 15'

ELEVATIONS
KB 522.7 M
DF
GL 517.2 M
DATE 28-MAR-1999

FILE NO:
API NO:

BEST
COPY
ON FILE

DENSITY

Baker Atlas — BAKER HUGHES

COMPANY: PARAMOUNT RESOURCES LTD.
WELL: PARAMOUNT ET AL LIARD A-81
FIELD:
PROVINCE: NORTHWEST TERRITORIES

FILE NO:
API NO:

COMPENSATED Z-DENSILOG™
COMPENSATED NEUTRON LOG
X-Y CALIPER LOG

Ver. 3.19

LOCATION: N70°1'8"
FWL 4665 ft FSL 2260 ft 13°

PERMANENT DATUM: S.L.
LOG MEASURED FROM: K.B. 5.5 ft ABOVE P.D.
DRILL. MEAS. FROM: KELLY BUSHING

ELEVATIONS: K.B. 512.2 m, D.F. 506.7 m, G.L. 497.2 m

OTHER SERVICES: HDIL-GR, DSL-SONIC, CSL-MECHANICAL

TOOL LOCATION: BOTTOM

	RUN	TRIP
DATE	11-MAR-1999	
TIME SINCE CIRCULATION	8.0 HRS	
MAX. RECORDED TEMP.	46.7 DEGC	
RECORDED BY	M. LEMKE	
WITNESSED BY	R. CLATTENBURG	

	RUN	TRIP
RUN NUMBER	1	
TRIP NUMBER		1
DRILLER'S CASING DEPTH	1933.8 m	
LOGGER'S CASING DEPTH	1934.4 m	
BOTTOM LOGGED INTERVAL	1934.4 m	
TOP LOGGED INTERVAL	1933.8 m	
CASING SIZE	244.5 MM	
CASING LOGGED	1933.8 m	
DENSITY	1050.0 KG/M3	
BIT SIZE	222.0 MM	
FLUID IN HOLE	WATER BASED	
DENSITY	1050.0 KG/M3	
VISCOSITY	1970 SEC	
SOURCE OF SAMPLE	CIRCULATION	
RM @ MEAS. TEMP.	0.47 @ 46.7 DEGC	
RMF @ MEAS. TEMP.		
RMC @ MEAS. TEMP.		
SOURCE OF RMF	RMC	
SOURCE OF RMC	FORMLINE	
RM @ BHT	0.47 @ 46.7 DEGC	
TIME CIRCULATED	8.0 HRS	
TIME LOGGER ON BOTTOM	11-MAR-1999	
UNIT NUMBER	5213	
LOCATION	5213	

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT, BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 1 TRIP 1 : time stopped circulation:11-mar-1999, 09:00

-all scales and presentations as per customers request.
-maximum deviation=4.1 degrees.
-pore and cnc presented on sandstone matrix ld-sc.
-zdl calipers used for correct volume log.
-cnc average caliper borehole corrected.
-density spikes on bottom of well due to washout and loss of pad contact.
-could not get density pad onto other side of hole, after several attempts
logged out as per customers request.

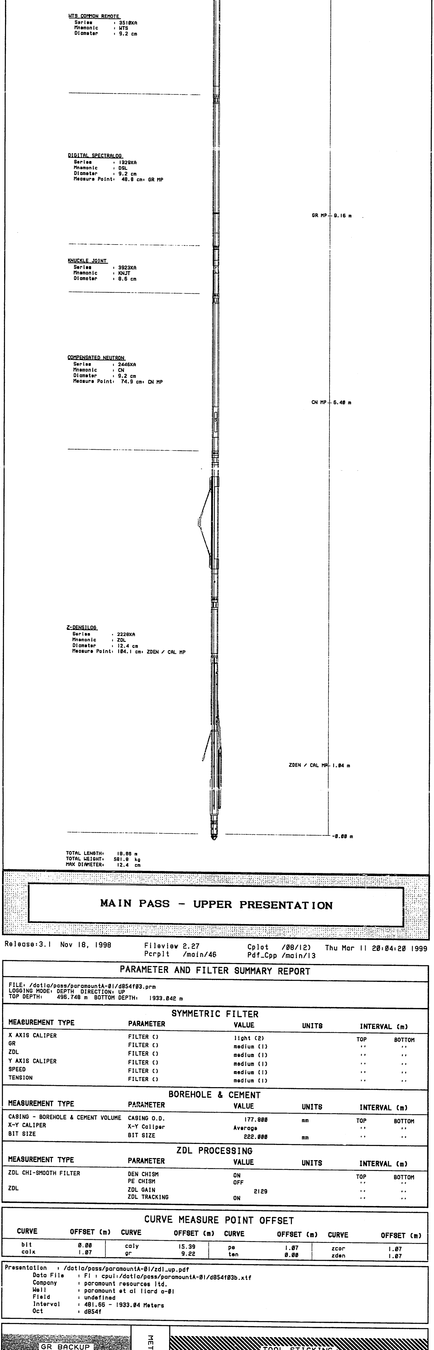
crewro.pinto.m.snell

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	SWIVEL	3964XA	153823	FREE
1	1	CAL	4281XA	844699	Y-CALIPER
1	1	TTRM	3981XA	138481	FREE
1	1	NTS	2518XA	158181	FREE
1	1	DSR	1329XA	153174	FREE
1	1	K_NT	3923XA	156792	KNUCKLE JOINT
1	1	CN	2445XA	178283	DECENTRALIZED
1	1	ZDL	2228EA/2228MA	177875/172844	PAD DEVICE

INSTRUMENT CONFIGURATION

Source File: /data/poss/paramountA-81/zdl-tdg



MAIN PASS - UPPER PRESENTATION

Release:3.1 Mon 16, 1998 Fileview 2.27 Cplot /88/12) Thu Mar 11 20:04:28 1999
Perplt /main/46 Pet.Cap /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/poss/paramountA-81/d0541f83.prm
LOGGING MODE: DEPTH DIRECTION: DOWN
TOP DEPTH: 495.748 m BOTTOM DEPTH: 1933.842 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
X AXIS CALIPER	FILTER ()	light (2)		TOP	BOTTOM
GR	FILTER (1)	medium (1)		"	"
ZDL	FILTER (1)	medium (1)		"	"
Y AXIS CALIPER	FILTER (1)	medium (1)		"	"
SPEED	FILTER (1)	medium (1)		"	"
TENSION	FILTER (1)	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	177.800	mm	TOP	BOTTOM
X-Y CALIPER	X-Y Caliper	Average		"	"
BIT SIZE	BIT SIZE	222.000	mm	"	"

ZDL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
ZDL CHI-SMOOTH FILTER	DEN CHISM	ON		TOP	BOTTOM
	PE CHISM	OFF		"	"
ZDL	ZDL GAIN	2129		"	"
	ZDL TRACKING	ON		"	"

CURVE MEASURE POINT OFFSET

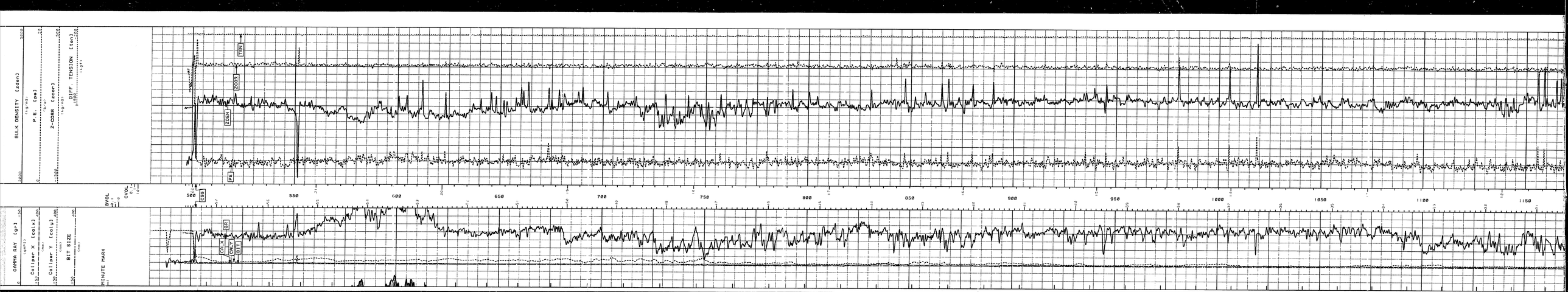
CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	caly	15.39	pe	1.07	zcor	1.07
calx	1.07	gr	9.22	ten	0.00	zden	1.07

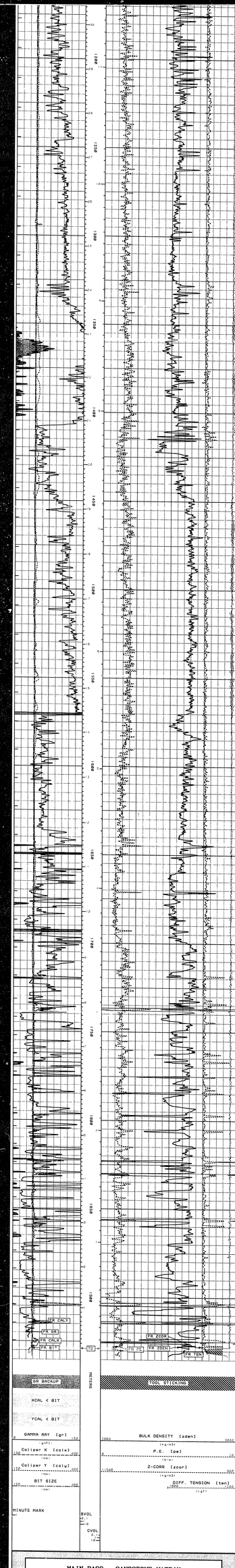
Presentation : /data/poss/paramountA-81/zdl_up.pdf
Data File : F1/x cpu1/data/poss/paramountA-81/d0541f83b.xtf
Company : paramount resources ltd.
Well : paramount et al liard a-81
Field : undefined
Interval : 481.65 - 1933.84 Meters
Oct : d0541

GR BACKUP | METERS | TOOL STICKING

XCAL < BIT

YCAL < BIT


BULK DENSITY (cdcn)
2500
2000
P.E. (ca)
0
10
Z-CORR (cecn)
500
-1500
DIFF. TENSION (ten)
2000
-1000
TEN
ZCOR
ZDEN
PE
CDEN
BVOL
CVOL
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
GAMMA RAY (gr)
0
150
Caliper X (calx)
6
16
Caliper Y (caly)
6
16
BIT SIZE
6
16
CALX
GR
CALY
BIT
MINUTE MARK



MAIN PASS - SANDSTONE MATRIX

Release:3.1 Nov 18, 1998 | Fileview 2.27 | Cplot /BV(1) | Thu Mar 11 20:03:27 1999
Pargifs /main/45 | Ref.Cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

File: /data/depee/paramount-01/4854283.pre
Log-Ing Mode: A Pass Direction: Up
TOP DEPTH: 498.748 m BOTTOM DEPTH: 1933.848 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
R AXIS CALIPER	FILTER ID	light (d)		..	..
GR	FILTER ID	medium (i)		..	..
CN	FILTER ID	medium (i)		..	..
ZDL	FILTER ID	medium (i)		..	..
Y AXIS CALIPER	FILTER ID	medium (i)		..	..
SPEED	FILTER ID	medium (i)		..	..
TENSION	FILTER ID	medium (i)		..	..

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING I.D. CASING O.D.	0.000 177.800	mm mm	TOP ..	BOTTOM ..
X-Y CALIPER	X-Y Caliper	Average		..	..
BIT SIZE	BIT SIZE	200.000	mm	..	..
BOREHOLE CORR DIAMETER SOURCE	CALIPER(FIXED Dia. Tension)	USE CALIPER		..	..
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cmbor)	200.000	mm	..	..

CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
BASE MATRIX	BASE MATRIX	SANDSTONE		TOP	BOTTOM
CN SALINITY CORRECTION	SALINITY	0	ppm	..	..
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		..	..

CH CASING & CEMENT CORRECTION	CORRECTION				
	BIT SIZE BEHIND CSNG	OFF	CBR.BOS	in	.. ..

ZDL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
ZDL CNC-DENSITY FILTER	SEN CNCDN	ON		..	..
	PE CNCDN	OFF		..	..
DENSITY POROSITY	Matrix	2.650	g/cm3	..	..
	Fluid	1.000	g/cm3	..	..
ZDL	ZDL GAIN	2125		..	..
	ZDL TRACKING	ON		..	..

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	cnc	6.48	porz	1.87		
cals	1.87	gr	5.22	ten	0.00		
rate	15.34	ps	1.87	zcor	1.87		

Presentation : /data/pgsa/paramount4k-01/zdl_main.pdf
Data File : f1 : opal:/data/pgsa/paramount4k-01/d854f83b.rtf
Company : paramount resources ltd.
Well : paramount et al ilard a-01
Field : undefined
Interval : 0 - 1933.84 Meters
Oct : ddoff

DR BACKUP

XCAL < BIT

YCAL < BIT

GAMMA RAY (gr)
0 (gAPI) 150

Caliper X (calx)
120 (mm) 220

Caliper Y (caly)
120 (mm) 220

BIT SIZE
150 (mm) 200

MINUTE MARK

NEUTRON

PARAMETERS

Z-DENSITY SANDSTONE POROSITY (porz)
+0.15 (g/cc) -0.15

NEUTRON SANDSTONE POROSITY (cnc)
45 (%) -15

Z-CORR (zcor)
0.500 (g/cc) 0.500

P.E. (pe)
0 (b/e) 10

DIFF. TENSION (ten)
-200 (kgf) 200

BVOL
0 (%) 100

CVOL
0 (%) 100

CBG

GR

CALX

CALY

BIT

CNC

PORZ

ZCOR

PE

TEN

8400

8425

8450

8475

8500

8525

8550

8575

8600

8625

8650

8675

8700

8725

8750

8775

8800

8825

8850

8875

8900

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9075

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9125

9150

9175

9200

9225

9250

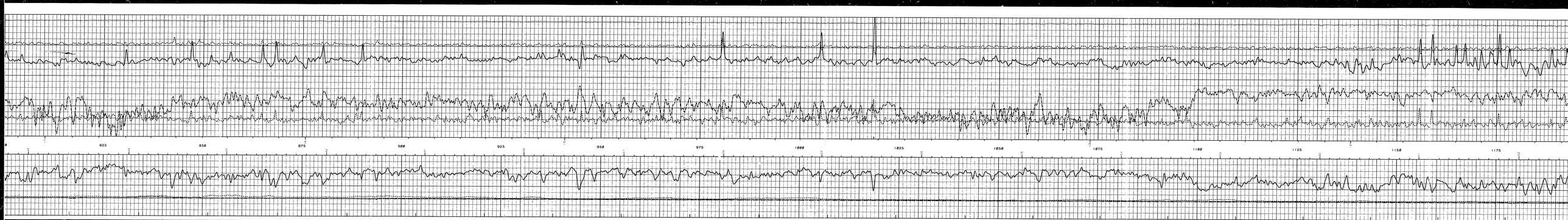
9275

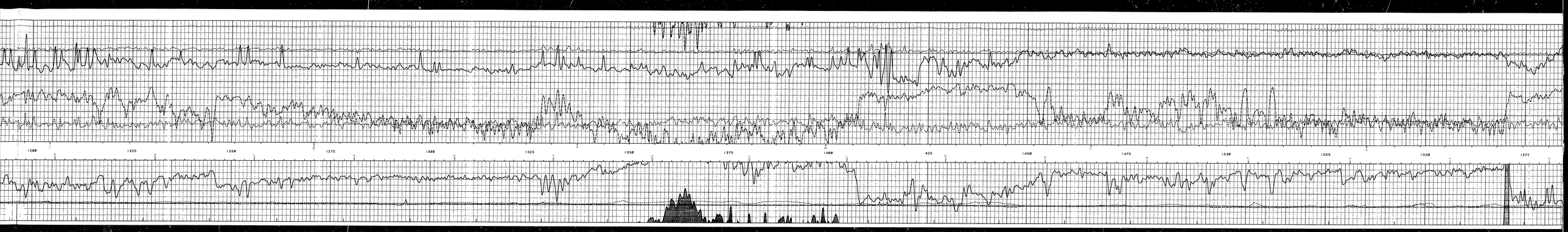
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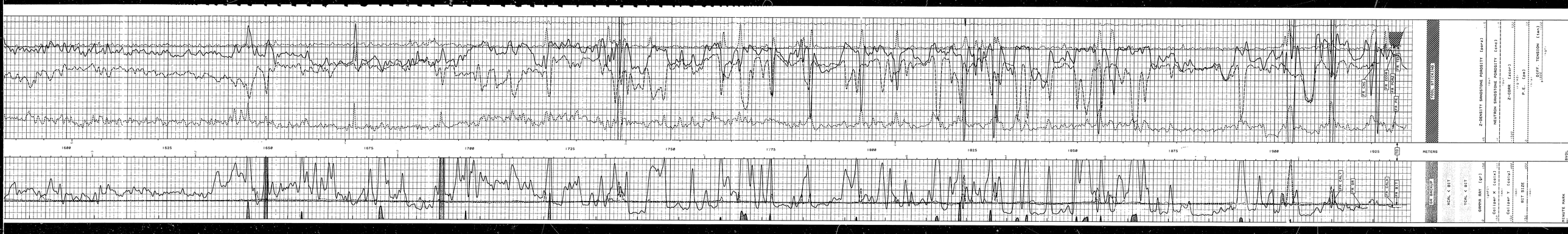
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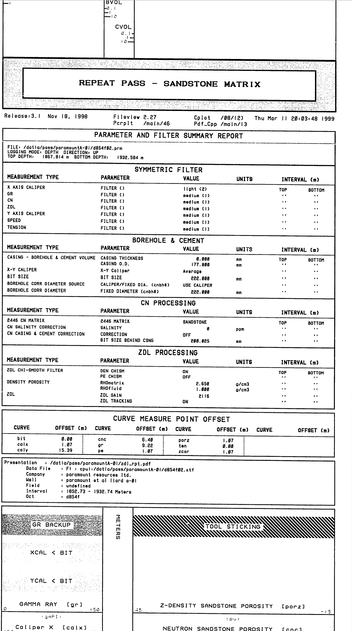
9350

9375


825
850
875
900
925
950
975
1000
1025
1050
1075
1100
1125
1150
1175


1200
1225
1250
1275
1300
1325
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1500
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1550
1575


1600
1625
1650
1675
1700
1725
1750
1775
1800
1825
1850
1875
1900
1925
1950
METERS
FEET
FEET
FEET



REPEAT PASS – SANDSTONE MATRIX

Release:3.1 Nov 18, 1998 Fileview 2.27 Plotsi /main/46 Plotcap /main/3 Plotcmd /BB(2) Thu Mar 11 20:03:48 1999

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/pose/porcnunit3-01/d854982.pre
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 1867.814 m BOTTOM DEPTH: 1930.584 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
X AXIS CALIPER	FILTER C1	light (2)		"	"
GR	FILTER C1	medium (1)		"	"
CN	FILTER C1	medium (1)		"	"
ZDL	FILTER C1	medium (1)		"	"
Y AXIS CALIPER	FILTER C1	medium (1)		"	"
SPEED	FILTER C1	medium (1)		"	"
TENSION	FILTER C1	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING THICKNESS	0.000	mm	"	"
	CASING O.D.	177.800	mm	"	"
X-Y CALIPER	X-Y Caliper	Average		"	"
BIT SIZE	BIT SIZE	222.000	mm	"	"
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cc/dd)	USE CALIPER		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cc/dd)	222.000	mm	"	"

CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
CN MATRIX	BANK CN MATRIX	SANDSTONE		"	"
CN SALINITY CORRECTION	SALINITY	0	ppm	"	"
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		"	"
	BIT SIZE BEHIND CSNG	000.025	mm	"	"

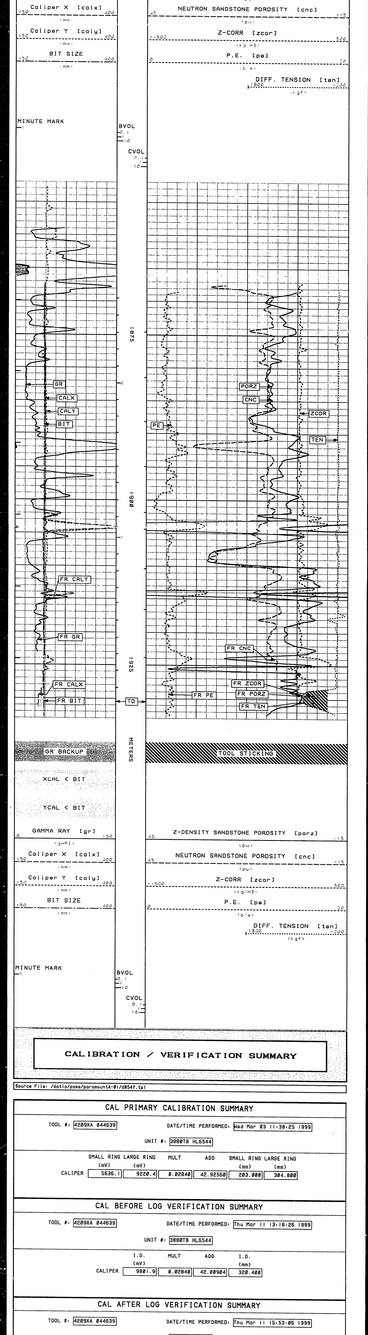
ZDL PROCESSING

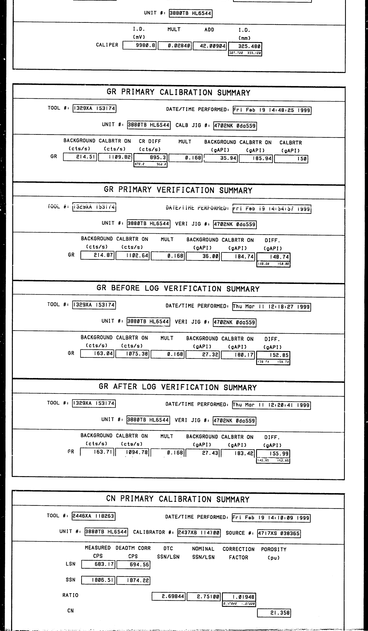
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	INTERVAL (m) BOTTOM
ZDL CHI-SMOOTH FILTER	DEN CHISM	ON		"	"
	PE CHISM	OFF		"	"
DENSITY POROSITY	RHOmatrix	2.650	g/cm3	"	"
	RHOfluid	1.000	g/cm3	"	"
ZDL	ZDL GAIN	0116		"	"
	ZDL TRACKING	ON		"	"

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	cnc	0.48	porz	1.07		
calx	1.07	gr	0.00	tan	0.00		
caly	15.39	pe	1.07	zcor	1.07		

Presentation: /data/pose/porcnunit3-01/prj1.pdf
Data Suite - Porcnunit3-01/d854982.xtf
Company - porcnunit resources ltd.
Well - porcnunit at of ttord q-81
Field - undefined
Interval - 1932.79 - 1930.74 Metersm
Run - one01





CALIBRATION / VERIFICATION SUMMARY

Source File: /data/pose/porcnunit3-01/d8547.cp

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 4289XA 844639 DATE/TIME PERFORMED: Wed Mar 03 11:30:25 1999

UNIT #: 2088TB HLS544

	SMALL RING LARGE RING (mV)	MULT (mV)	ADD	SMALL RING LARGE RING (mm)
CALIPER	5636.1	9208.4	0.02048	42.92560	203.200	384.600

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 4289XA 844639 DATE/TIME PERFORMED: Thu Mar 11 13:18:25 1999

UNIT #: 2088TB HLS544

	I.D. (mV)	MULT	ADD	I.D. (mm)
CALIPER	9881.9	0.02048	42.89560	320.488

CAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 4289XA 844639 DATE/TIME PERFORMED: Thu Mar 11 15:53:05 1999

UNIT #: 2088TB HLS544

	I.D. (mV)	MULT	ADD	I.D. (mm)
CALIPER	9908.0	0.02048	42.89924	325.488

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 3209A 153174 DATE/TIME PERFORMED: Fri Feb 19 14:48:25 1999

UNIT #: 2088TB HLS544 CALB JIG #: 4782XK #do559

	BACKGROUND CALBRTN ON (cts/s)	CR OFF (cts/s)	DIFF (gAPI)	MULT	BACKGROUND CALBRTN ON (gAPI)	CALBRTN (gAPI)
GR	814.31	1109.92	295.3	0.169	35.94	185.94	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 3209A 153174 DATE/TIME PERFORMED: Fri Feb 19 14:54:37 1999

UNIT #: 2088TB HLS544 VERI JIG #: 4782XK #do559

	BACKGROUND CALBRTN ON (cts/s)	MULT	BACKGROUND CALBRTN ON (gAPI)	DIFF. (gAPI)
GR	814.87	0.169	35.99	184.74	148.74

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 3209A 153174 DATE/TIME PERFORMED: Thu Mar 11 12:18:27 1999

UNIT #: 2088TB HLS544 VERI JIG #: 4782XK #do559

	BACKGROUND CALBRTN ON (cts/s)	MULT	BACKGROUND CALBRTN ON (gAPI)	DIFF. (gAPI)
GR	1103.04	0.169	27.32	190.17	152.83

GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 3209A 153174 DATE/TIME PERFORMED: Thu Mar 11 12:28:41 1999

UNIT #: 2088TB HLS544 VERI JIG #: 4782XK #do559

	BACKGROUND CALBRTN ON (cts/s)	MULT	BACKGROUND CALBRTN ON (gAPI)	DIFF. (gAPI)
GR	1103.71	0.169	27.43	193.40	155.99

CN PRIMARY CALIBRATION SUMMARY

TOOL #: 8446SA 118263 DATE/TIME PERFORMED: Fri Feb 19 14:18:09 1999

UNIT #: 2088TB HLS544 CALIBRATOR #: 2437XB 111480 SOURCE #: 4717XS #38365

	MEASURED DEADTM CORR CPS	DTC SSN/LSN	NOMINAL SSN/LSN	CORRECTION FACTOR	POROSITY (pu)
LSN	683.17	694.56			
SSN	1885.53	1874.02			
RATIO		2.69846	2.75180	1.01948	
CN					21.350

CN PRIMARY VERIFICATION SUMMARY

TOOL #: 2446XA 118263 DATE/TIME PERFORMED: Fri Feb 19 14:25:52 1999

UNIT #: 3880TB HL6544 ICE BLOCK #: 4717ND 00d091

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	925.09	946.86				
SSN	1644.41	1708.36				
RATIO			1.79731	1.81948	1.83442	
CN						9.507

CN BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2446XA 118263 DATE/TIME PERFORMED: Thu Mar 11 12:12:18 1999

UNIT #: 3880TB HL6544 ICE BLOCK #: 4717ND 00d091

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	888.21	907.58				
SSN	1638.32	1693.86				
RATIO			1.86634	1.81948	1.90527	
CN						10.340

CN AFTER LOG VERIFICATION SUMMARY

TOOL #: 2446XA 118263 DATE/TIME PERFORMED: Thu Mar 11 19:52:18 1999

UNIT #: 3880TB HL6544 ICE BLOCK #: 4717ND 00d091

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	848.86	865.69				
SSN	1677.86	1736.15				
RATIO			2.00551	1.81948	2.04640	
CN						12.049

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Wed Mar 03 11:31:28 1999

UNIT #: 3880TB HL6544

	SMALL RING (raw)	LARGE RING (raw)	MULT	ADD	SMALL RING (mm)	LARGE RING (mm)
CALIPER	2342.7	2945.9	0.16877	-192.36949	203.000	304.000

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Thu Mar 11 10:52:35 1999

UNIT #: 3880TB HL6544

	I.D. (raw)	MULT	ADD	I.D. (mm)
CALIPER	3067.3	0.16877	-197.25780	320.400

CAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Thu Mar 11 19:24:21 1999

UNIT #: 3880TB HL6544

	I.D. (raw)	MULT	ADD	I.D. (mm)
CALIPER	3062.5	0.16877	-197.25780	319.598

ZDL PRIMARY CALIBRATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Wed Mar 03 11:13:37 1999

UNIT #: 3880TB HL6544 CALB. BLOCK SET: 2225XA 150415 CS SOURCE #: 4703NT 000798

	SSD-NDTC (cts/s)	HRD1-NDTC (cts/s)	HRD2-NDTC (cts/s)	SHR	DEN (kg/m3)	CORR (kg/m3)	PE (b/e)
MG BLOCK (LO PE)	10841.5	4340.6	5155.0	0.710	1687.000	7.000	2.293
AL BLOCK	5315.1	436.9	547.5		2686.000	.000	
AL+SHIM (CORR)	7434.0	757.1	925.0		2601.000	150.000	
MG+SHIM (HI PE)		2094.6	2645.7	0.289			10.580
RATIO MG/AL	2.04	9.93	9.42				

BACKGROUND (cts/s)	CS PEAK CHANNEL #	AM PEAK CHANNEL #
1274.0	232.5	80.9

ZDL PRIMARY VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Wed Mar 03 13:23:32 1999

UNIT #: 3880TB HL6544 VERI. JIG #: 4704NA 119127

	SSD-NDTC (cts/s)	HRD1-NDTC (cts/s)	HRD2-NDTC (cts/s)	SHR	DEN (kg/m3)	CORR (kg/m3)	PE (b/e)
FIELD BLOCK	10026.5	2186.9	5272.2	0.184	1811.398	10.086	16.020

ZDL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Thu Mar 11 12:12:39 1999

UNIT #: 3880TB HL6544 VERI. JIG #: 4704NA 119127

	SSD-NDTC (cts/s)	HRD1-NDTC (cts/s)	HRD2-NDTC (cts/s)	SHR	DEN (kg/m3)	CORR (kg/m3)	PE (b/e)
FIELD BLOCK	9931.[illegible]	[illegible]	5233.3	0.186	1825.301	2.132	15.947

ZDL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: [illegible]

UNIT #: 3880TB HL6544 VERI. JIG #: [illegible]

	SSD-NDTC (cts/s)	HRD1-NDTC (cts/s)	HRD2-NDTC (cts/s)	SHR	DEN (kg/m3)	CORR (kg/m3)	PE (b/e)
FIELD BLOCK	10069.4	[illegible]	5314.7	[illegible]	[illegible]	[illegible]	.362

BAKER HUGHES

Baker Atlas

COMPANY: PARAMOUNT RESOURCES LTD.

WELL: PARAMOUNT ET AL ISLAND A-1

FIELD: UNDEFINED

PROVINCE: NORTHWEST TERRITORIES

LOCATION:

WID-1959

A01 600E6 10' 1230E6 15'

ELEVATION:

KB 502.7 M

DF

GL 517.2 M

DATE

FILE NO:

API NO:

BEST
COPY
ON FILE

RED COPY

Baker Hughes INTEQ

TRUE VERTICAL DEPTH COMPENSATED Z-DENSILOG™ COMPENSATED NEUTRON LOG GAMMA RAY LOG X-Y CALIPER LOG

Baker Atlas

FILE NO:	COMPANY	PARAMOUNT RESOURCES LTD.
	WELL	PARAMOUNT ET AL LIARD A-41
API NO:	FIELD	UNDEFINED
	PROVINCE	NORTHWEST TERRITORIES

Ver 3.19

LOCATION:
NTS-1658
AK: 68053 18' 12360S 15'

OTHER SERVICES
NGL-AB
RAC-GR-CN
DLL-GR-SP
CBL
LOGTIM

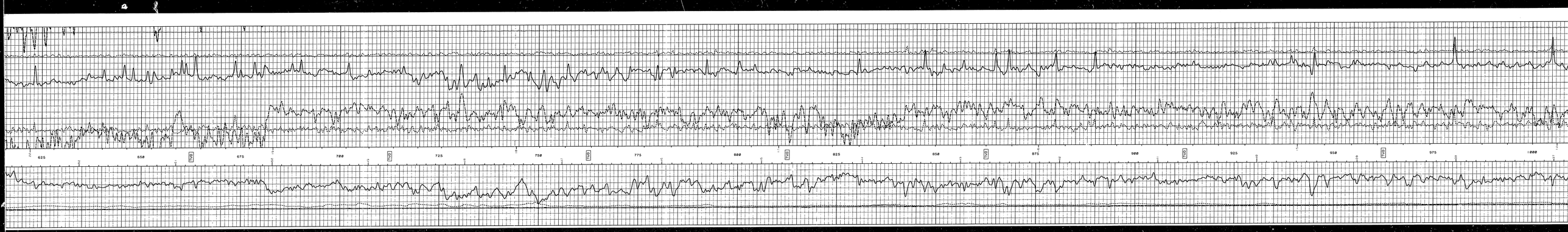
PERMANENT DATUM	G.L.	ELEVATION 517.2 M	ELEVATIONS
LOG MEASURED FROM	K.B.	5.3 M ABOVE P.D.	KB 522.7 M
DRILL. MEAS. FROM	KELLY BUSHING		DF
			GL 517.2 M

DATE	17-MAR-1999	TVD
SERVICE ORDER	61151-4	
DEPTH DRILLER	1935.0 M	1934.2 M
DEPTH LOGGER	1938.3 M	1939.1 M
BOTTOM LOGGED INTERVAL	1928.2 M	1928.2 M
TOP LOGGED INTERVAL	580.0 M	580.0 M
CASING-DRILLER	339.7 MM @ 580.0 M	@
CASING-LOGGER	580.0 M	
BIT SIZE	222 MM	
TYPE OF FLUID IN HOLE	INVERT	
DENSITY / VISCOSITY	1170 KG/M3 / 67.0 SEC	AP 5
PH / FLUID LOSS	- / -	-
SOURCE OF SAMPLE	FLOWLINE	
RM AT MEAS. TEMP.	-	@
RMF AT MEAS. TEMP.	-	@
RMC AT MEAS. TEMP.	-	@
SOURCE OF RMF / RMC	- / -	-
RM AT BHT	-	@
TIME SINCE CIRCULATION	8.75 HRS	
MAX. RECORDED TEMP.	62.1 DEGC	
OPER. NO. LOCATION	NJ6544	S.P.
RECORDED BY	N.LEBRE	
WITNESSED BY	R.CLATTENBURG	

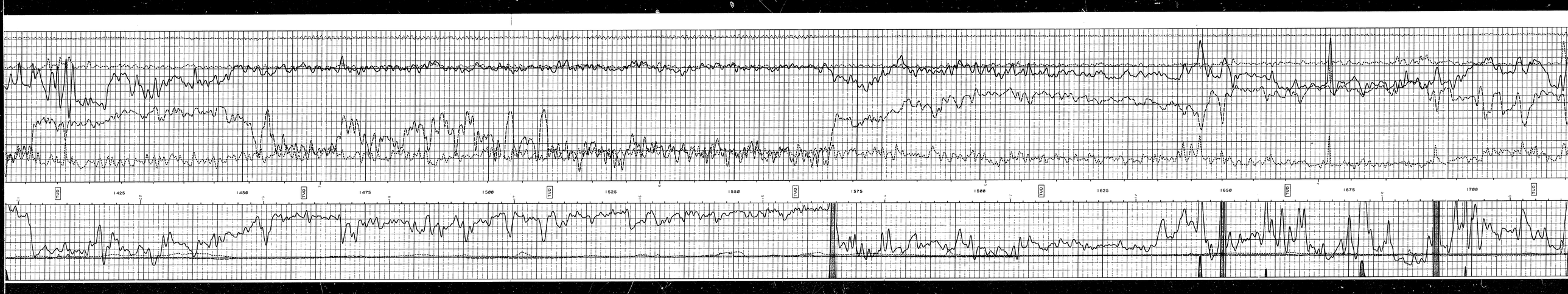
THE DATA GIVEN HEREIN IS PAID FOR BY THE CUSTOMER AND IS THE PROPERTY OF BAKER ATLAS. BAKER ATLAS WILL GUARD IT AS CAREFULLY AS IT GUARDS ITS OWN INFORMATION AND WILL DISTRIBUTE IT ONLY TO THOSE AUTHORIZED BY THE CUSTOMER. NEITHER BAKER ATLAS NOR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES MAKE ANY WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, WITH RESPECT TO THE ACCURACY, CORRECTNESS OR COMPLETENESS OF THE INFORMATION CONTAINED HEREIN OR THE RESULTS OBTAINED FROM THE USE OF SUCH INFORMATION. IN NO EVENT SHALL BAKER ATLAS BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSE INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY USE OF THE INFORMATION OR ANY INTERPRETATION MADE BY ANYONE. THIS DISCLAIMER SHALL BE BINDING UPON THE PARTIES HERETO AND THEIR SUCCESSORS, HEIRS AND ASSIGNS UPON ACCEPTANCE OF THIS DATA.

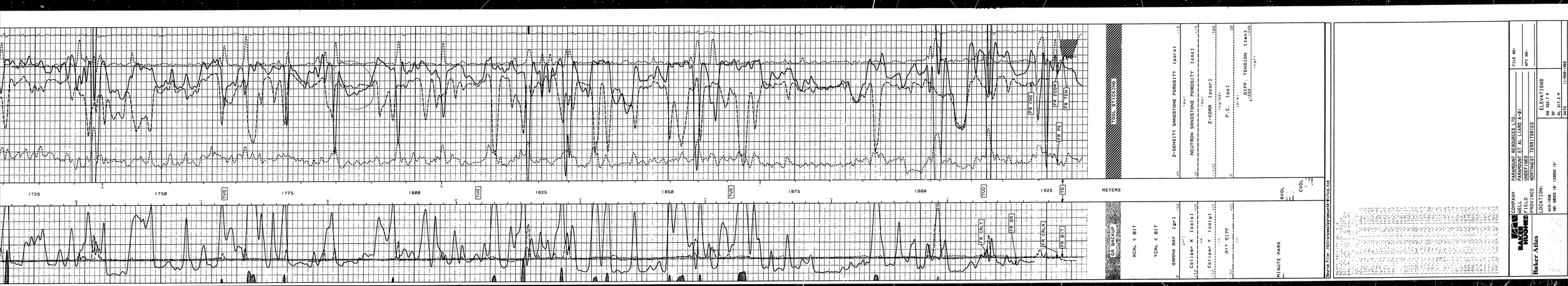
REMARKS

Run Depth : - Log measured from/below/above KB/DF/GL/Casing Flange.
- All depths are corrections per customer request.
- Top of log is shallowest depth tool will go.
- Top of log is shallowest depth tool will go.
- Tool was pushed to bottom of hole.
- Tool was pushed to bottom of hole.
- Tool was pushed to bottom of hole


625
650
675
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TD
METERS
FR CNC
FR ZCOR
FR TEN
FR PE
FR CALI
FR CALX
FR BIT
FR GR
TOOL STRETCH
XCAL < BIT
YCAL < BIT
GAMMA RAY [gr]
Caliper X [cals]
Caliper Y [cals]
BIT SIZE
MINUTE MARK
Z-DENSITY SANDSTONE POROSITY [por2]
NEUTRON SANDSTONE POROSITY [cnc]
Z-CORR [zcor]
P.E. [pe]
DIFF. TENSION [ten]
BVOL
CVOL
FOR PROCESSED
CURVES SEE SCHLUM
Data File: /dsk1/users/pp/depths/Afinal.tnd
COMPANY PARAMOUNT RESOURCES LTD.
WELL PARAMOUNT ET AL LIARD A-81
FIELD WILDCAT
PROVINCE NORTHWEST TERRITORIES
FILE NO:
API NO:
LOCATION: LAT 60°58 18" LONG 123°09 15"
W10-1858
ELEVATIONS
KB 532.7 M
DF
GL 517.2 M
DATE 11-MAR-1989
Baker Atlas
BAKER HUGHES

N.E.B. COPY

BAKER HUGHES

Baker Atlas

COMPENSATED Z-DENSILOG™
COMPENSATED NEUTRON LOG
GAMMA RAY LOG
X-Y CALIPER LOG

FILE NO:	COMPANY	PARAMOUNT RESOURCES LTD.
	WELL	PARAMOUNT ET AL LIARD A-01
API NO:	FIELD	UNDEFINED
	PROVINCE	NORTHWEST TERRITORIES

Ver 3.19

LOCATION:
WID:1858
A01 60DEG 10' 123DEG 15'

OTHER SERVICES
HDIL-GR
MAC-GR-CAL

LOGSTAR

PERMANENT DATUM G.L. ELEVATION 517.2 M
LOG MEASURED FROM K.B. 5.5 M ABOVE P.D.
DRILL. MEAS. FROM KELLY BUSHING

ELEVATIONS
KB 522.7 M
DF
GL 517.2 M

DATE		20-MAR-1999		
RUN	TRIP	2	1	
SERVICE ORDER		968849		
DEPTH DRILLER		2046.0 M		
DEPTH LOGGER		2044.8 M		
BOTTOM LOGGED INTERVAL		2043.7 M		
TOP LOGGED INTERVAL		1925.0 M		
CASING-DRILLER		339.7 MM @ 503.0 M		@
CASING LOGGER		NOT LOGGED		
BIT SIZE		222 MM		
TYPE OF FLUID IN HOLE		INVERT		
DENSITY	VISCOSITY	975 G/C3	47 S	
PH	FLUIDLOSS	-	-	
SOURCE OF SAMPLE		FLOWLINE		
RM AT MEAS. TEMP.		- @ -		@
RMF AT MEAS. TEMP.		- @ -		@
RMC AT MEAS. TEMP.		- @ -		@
SOURCE OF RMF	RMC	-	-	
RM AT BHT		- @ -		@
TIME SINCE CIRCULATION		7.75 HRS		
MAX. RECORDED TEMP.		64.0 DEGC		
EQUIP. NO.	LOCATION	HL6544	G.P.	
RECORDED BY		R.KHAFIZOV/D.SPELAY		
WITNESSED BY		B.CLATTENBURG		

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 2 TRIP 1 : time stopped circulation: 20-mar-99 01:00

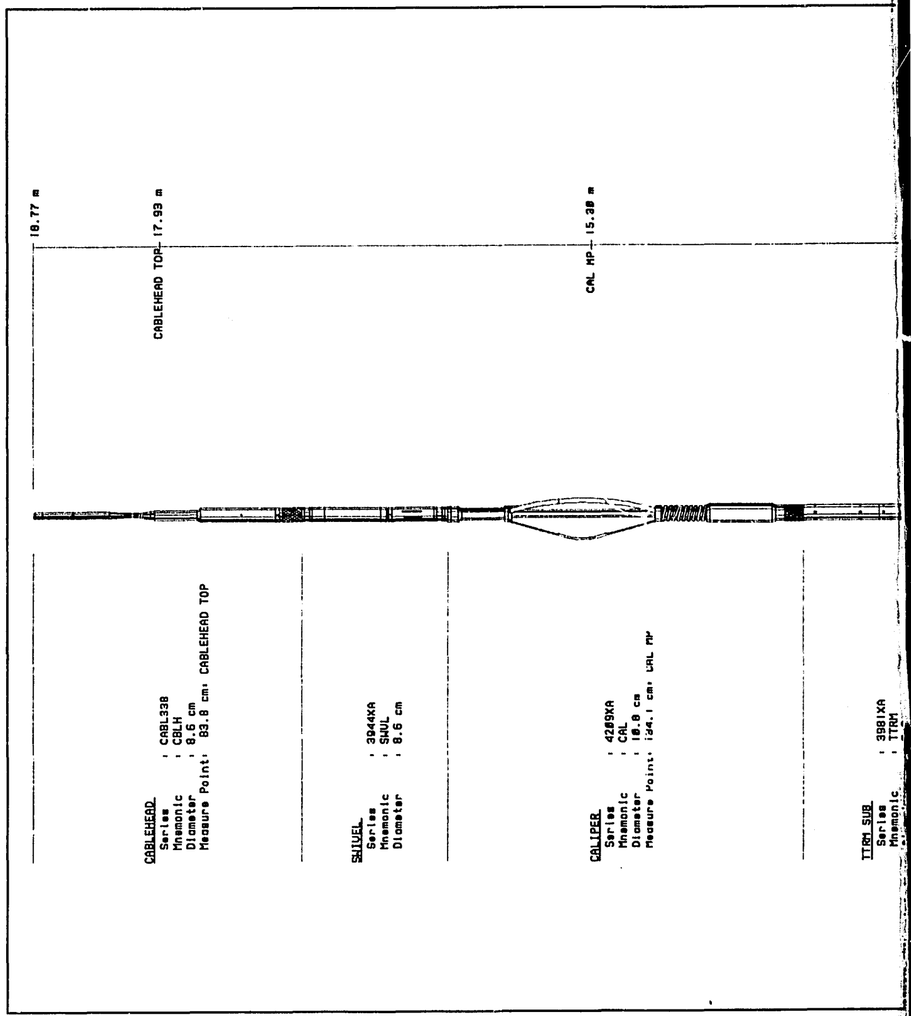
- tied in to baker atlas log 11-mar-99.
- all scales and presentations as per customers request.
- porz and cnc recorded and presented on a sandstone matrix.
- cnc is average caliper corrected.

crew:o.pinto, b.fusick

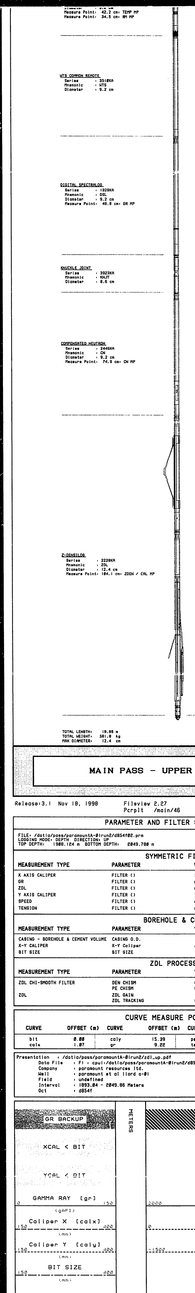
EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
		SWIVEL	3944XA	153823	FREE
		CAL	4209XA	044639	Y-CALIPER
		TTRM	3981XA	180401	FREE
		WTS	3510XA	160101	FREE
		DGR	1329XA	153174	FREE
		KNJT	3923XA	166792	KNUCKLE JOINT
		CN	2446XA	118263	DECENTRALIZED
		ZDL	2228EA/2228MA	177075/172644	PAD DEVICE

INSTRUMENT CONFIGURATION



Source File: /data/pass/paramountA-01run2/zdl-tdg



MAIN PASS - UPPER PRESENTATION

Release:3.1 Nov 18, 1998 Filelev 2.27 Cplot /80/(2) Sat Mar 20 09:05:09 1999
Pcrplt /main/46 Pdf,Cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dsl/pase/paromount4-81run2/d8548182.pre
Logging Mode (down/up) direction: up
TOP DEPTH: 1986.164 m BOTTOM DEPTH: 2845.788 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
X AXIS CALIPER	FILTER (1)	light (2)		"	"
GR	FILTER (1)	medium (1)		"	"
ZDL	FILTER (1)	medium (1)		"	"
Y AXIS CALIPER	FILTER (1)	light (2)		"	"
SPEED	FILTER (1)	medium (1)		"	"
TENSION	FILTER (1)	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
CASING + BOREHOLE & CEMENT VOLUME	CASING O.D.	177.800	mm	"	"
A+Y CALIPER	A+Y Caliper	Average		"	"
BIT SIZE	BIT SIZE	222.000	mm	"	"

ZDL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
ZDL CHI-SMOOTH FILTER	DEN CHISM	ON		"	"
	PE CHISM	OFF		"	"
ZDL	ZDL DATA	2187		"	"
	ZDL TRACKING	ON		"	"

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	caly	15.20	pe	1.87	zcor	1.87
calx	1.87	gr	9.22	ten	0.00	zden	1.87

Presentation : /dsl/pase/paromount4-81run2/zdl_up.pdf
Data File : FI - cput:/dsl/pase/paromount4-81run2/d8548182.xtf
Company : paromount resources ltd.
Well : paromount et al lloyd ard-01
Field : undefined
Interval : 2052.64 - 2845.86 Meters
Oct : d8547

MAIN PASS - SANDSTONE MATRIX

Release:3.1 Nov 18, 1998 Filelev 2.27 Cplot /80/(2) Sat Mar 20 09:57:55 1999
Pcrplt /main/46 Pdf,Cpp /main/13

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dsl/pase/paromount4-81run2/d8548182.pre
Logging Mode (down/up) direction: up
TOP DEPTH: 1986.164 m BOTTOM DEPTH: 2845.788 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
X AXIS CALIPER	FILTER (1)	light (2)		"	"
GR	FILTER (1)	medium (1)		"	"
CN	FILTER (1)	medium (1)		"	"
ZDL	FILTER (1)	medium (1)		"	"
Y AXIS CALIPER	FILTER (1)	light (2)		"	"
SPEED	FILTER (1)	medium (1)		"	"
TENSION	FILTER (1)	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
CASING + BOREHOLE & CEMENT VOLUME	CASING THICKNESS	6.898	mm	"	"
	CASING O.D.	177.800		"	"
A+Y CALIPER	A+Y Caliper	Average		"	"
BIT SIZE	BIT SIZE	222.000	mm	"	"
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cosbd)	USE CALIPER		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cosbd)	220.825	mm	"	"

CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
BASE CN MATRIX	BASE MATRIX	SANDSTONE		"	"
CN SALINITY CORRECTION	SALINITY	0	ppm	"	"
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		"	"
	BIT SIZE BEHIND CSNG	220.825	mm	"	"

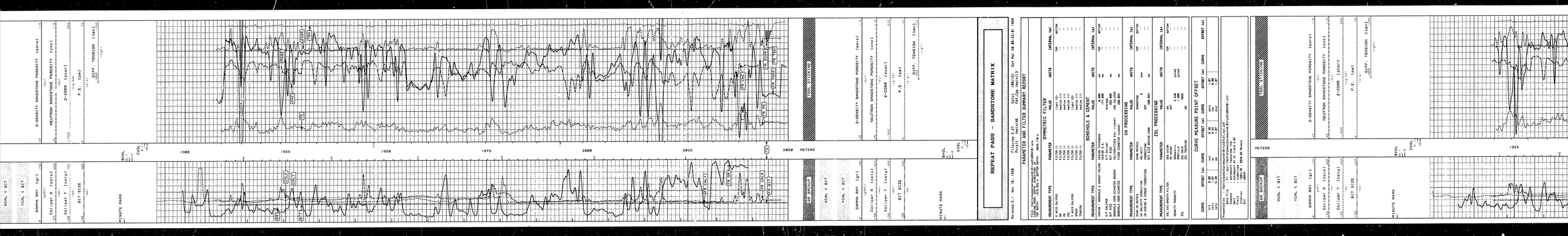
ZDL PROCESSING

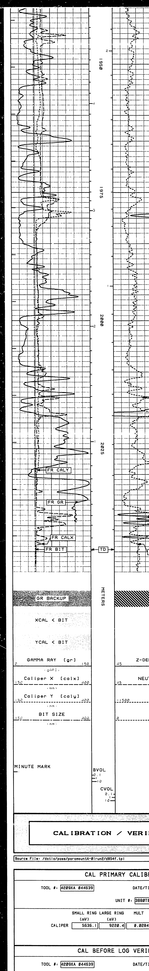
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m)	
				TOP	BOTTOM
ZDL CHI-SMOOTH FILTER	DEN CHISM	ON		"	"
	PE CHISM	OFF		"	"
DENSITY POROSITY	MATRIX	2.650	g/cm3	"	"
	RHOFluid	1.000	g/cm3	"	"
ZDL	ZDL DATA	2187		"	"
	ZDL TRACKING	ON		"	"

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	caly	15.40	pcnz	1.87		
calx	1.87	gr	9.22	ten	0.00		
cals	15.20	pe	1.87	zcor	1.87		

Presentation : /dsl/pase/paromount4-81run2/zdl_main.pdf
Data File : FI - cput:/dsl/pase/paromount4-81run2/d8548182.xtf
Company : paromount resources ltd.
Well : paromount et al lloyd ard-01
Field : undefined
Interval : 1985.84 - 2845.86 Meters
Oct : d8547


XCAL: < BIT
TCAL: < BIT
GAMMA RAY [gr]
Caliper X [cals]
Caliper Y [cals]
BIT SIZE
MINUTE MARK
Z-DENSITY SANDSTONE POROSITY [por2]
NEUTRON SANDSTONE POROSITY [tnc]
Z-CORR [cor2]
P.E. [pe]
DIFF. TENSION [ten]
CR BACKUP CURVES
CR TENSION
METERS
1900
1925
1950
1975
2000
2025
2050
BVOL
CVOL
REPEAT PASS - SANDSTONE MATRIX
Release:1 Nov 16, 1998
Filename:LIS
Prgrm:Platform Express
Date:09/12/98 Sat Mar 20 08:55:01 1999
PARAMETER AND FILTER SUMMARY REPORT
LDP/CNP/SDP/APS/HRDD/AIT
Combinable Magnetic Resonance
Run One
SYMMETRIC FILTER
MEASUREMENT TYPE
PARAMETER
VALUE
UNITS
INTERVAL (ft)
Mud Motor
Gs
CDL
Phase Deltap
HRAS
Gamma Ray
FILTER 1)
FILTER 2)
FILTER 3)
FILTER 4)
FILTER 5)
FILTER 6)
method 1)
method 2)
method 3)
method 4)
method 5)
method 6)
TOP
BOTTOM
BOREHOLE & CEMENT
MEASUREMENT TYPE
PARAMETER
VALUE
UNITS
INTERVAL (ft)
Last Casing Shoe Diameter
Last Casing Weight
Bit Size
Borehole Corr Diameter
Borehole Corr Diameter
CASING O.D.
CASING WEIGHT
BIT SIZE
BOREHOLE DIA. (CALC)
FIXED DIAMETER (CALC)
PEF,RHOB
PEF,RHOB
PEF,RHOB
HRD,HRI
HRD,HRI
TOP
BOTTOM
CN PROCESSING
MEASUREMENT TYPE
PARAMETER
VALUE
UNITS
INTERVAL (ft)
Sand Matrix
Limestone Matrix
CN Casing & Cement Correction
Sandstone
Limestone
Diff. Limestone Zone
Diff. Limestone Zone
TOP
BOTTOM
ZDL PROCESSING
MEASUREMENT TYPE
PARAMETER
VALUE
UNITS
INTERVAL (ft)
Density Correction
Density Porosity
ZDL
Pe Curve
Rhomid
Rhomin
ZDL Tooltype
4.56
DPT
2.65
2.65
2.65
2.65
gcm3
gcm3
gcm3
gcm3
TOP
BOTTOM
CURVE MEASURE POINT OFFSET
CURVE
OFFSET (ft)
CURVE
SPRAT (ft)
CURVE
OFFSET (ft)
Gamma Ray
Caliper X
Caliper Y
Bit Size
Z-Density
Neutron
Z-Corr
P.E.
Diff. Tension
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
Gamma Ray
Caliper X
Caliper Y
Bit Size
Z-Density
Neutron
Z-Corr
P.E.
Diff. Tension
6.00
6.00
6.00
6.00
6.00
6.00
6.00
6.00
6.00
Gamma Ray
Caliper X
Caliper Y
Bit Size
Z-Density
Neutron
Z-Corr
P.E.
Diff. Tension
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
0.00
Presentation c:/Geoframe/prospect/Borehole/crl.prf
Depth Type : Measured Depth
Scale : 1:240 (5"/100')
Plotted : Sat Mar 20 08:55:01 1999
Data Type : Realtime
Run No. : 1
Well Name : Borehole Corrections
Company : Schlumberger


1500
1600
1700
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
3100
3200
3300
3400
3500
3600
3700
3800
3900
4000
4100
4200
4300
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
5400
5500
5600
5700
5800
5900

MISCELLANEOUS

N.E.B. COPY

BAKER HUGHES

Baker Atlas

GAMMA RAY DUAL SPACED CEMENT BOND LOG

FILING NO. 978465

COMPANY	PARAMOUNT RESOURCES LIMITED
WELL	PARA ET AL FT LIARD A-1
FIELD	FT. LIARD
PROVINCE	NORTHWEST TERRITORIES

LOCATION A-1
LSD. A-1 SEC. TWP.
RGE. W.

OTHER SERVICES

PERMANENT DATUM: GROUND LEVEL ELEV.517.2 K.B. 522.7
LOG MEASURED FROM KELLY BUSHING 5.5 M.Above Perm.Datum G.L. 517.2

Date	FEBUARY 09,2000	Type Fluid	WATER
Run No.	ONE	Fluid Level	N/A
Type Log	GR/CCL/CCBL/VDL	Wellhead Pressure	7 MPA
Depth Driller (OH)	2046.0	Max. Temp.°C	
Depth Driller (CH)	2036.0	Oper. Rig Time	6 HOURS
P.B.T.D. by Logger	1995.0	Recorded By	S.BURKE
Bottom Log Interval	1995.0	Witnessed By	J.FRIEND
Logged Interval	995.0	Apparent Cement Top	N/A
Top Log Interval	1000.0	Hoist Unit# /Loc.	10212 / 22935
Zone(s) of Interest	SEE DATA SHEET	Program	CSS/16.9
Gun Type and Size			
Gun Charges			

CASING RECORD	SIZE	kg/m	GRADE	TYPE JOINT	FROM	TO
SURFACE					SURFACE	
PRODUCTION	177.8	34.26	K-55		SURFACE	2047.0

EQUIPMENT DATA

SERVICE ORDER NO.	988465
AFE NO. / P.O. NO.	N/A
CPU NO.	CSS
DAS NO.	CSS/16.9
UPPER TOOL NO.	GR/CCL/CCBL/VDL
LOWER TOOL NO.	
FIELD PRINTS	2
FINAL PRINTS	6

TAPE NO.	N/A
SOURCE NO. / TYPE	N/A
CENTRALIZER	N/A
REFERENCE CO.	BAKER ATLAS
DATE	MARCH 11,1999
PASS.	FAXED COMP. NEUTRON LOG

WELL SERVICE DATA PAGE

GUN SPECIFICATIONS

CARRIER TYPE:			
PHASING			
CARRIER SIZE:		M.M.	
CHARGE TYPE:			
CHARGE GM. WT:		GRAMS	
PENETRATION:		M.M.	
ENTRY HOLE:		M.M.	
SHOT DENSITY	NO OF SHOTS	PERFORATE FROM	INTERVAL TO

WELLBORE EQUIPMENT

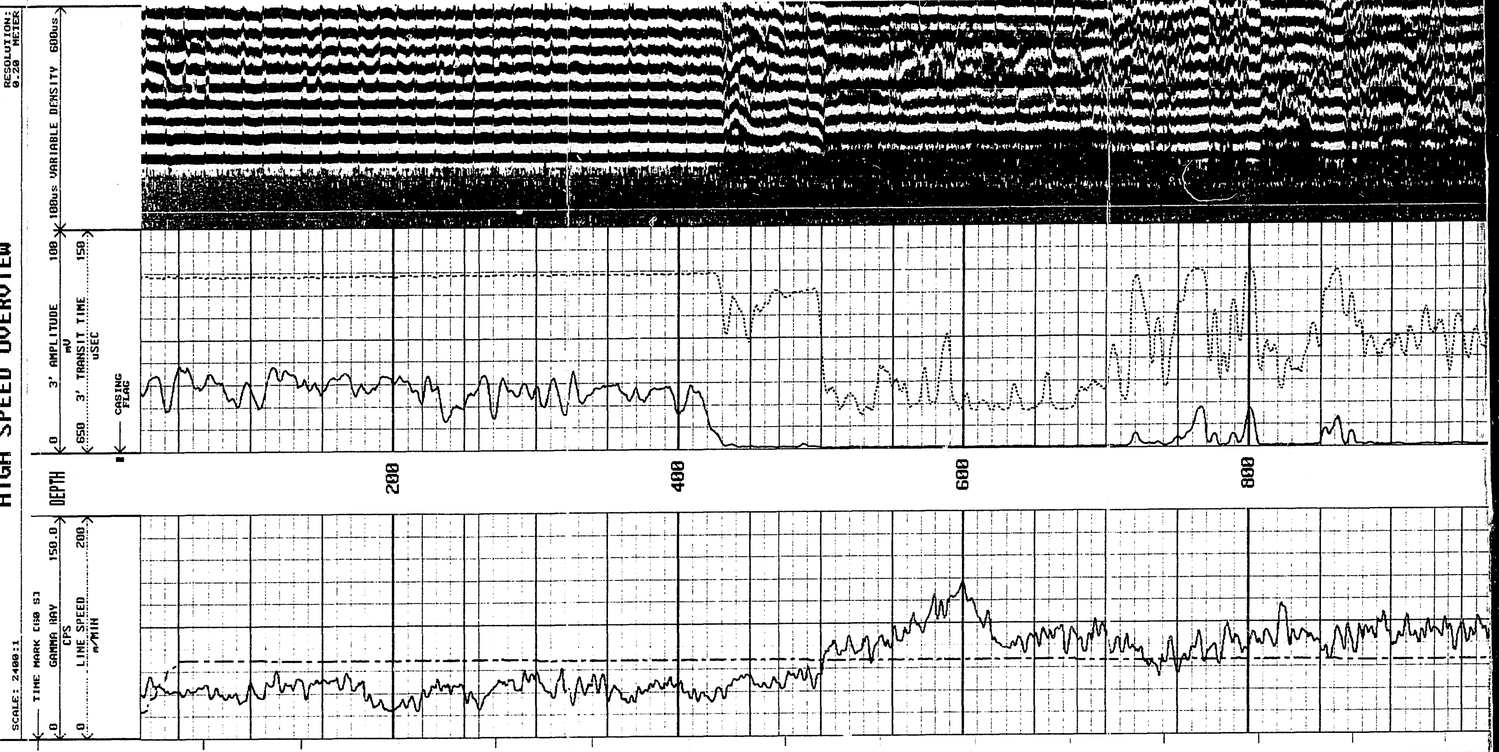
	SIZE	TYPE	MODEL	DEPTH
BRIDGE PLUG				
RETAINER				
PACKER				

COMMENTS:

02/09/00
SCALE: 2400:1

HIGH SPEED OVERVIEW

12:05:20
RESOLUTION: 0.25 METER



HIGH SPEED OVERVIEW

UPPER PRESSURE PASS 7MPA

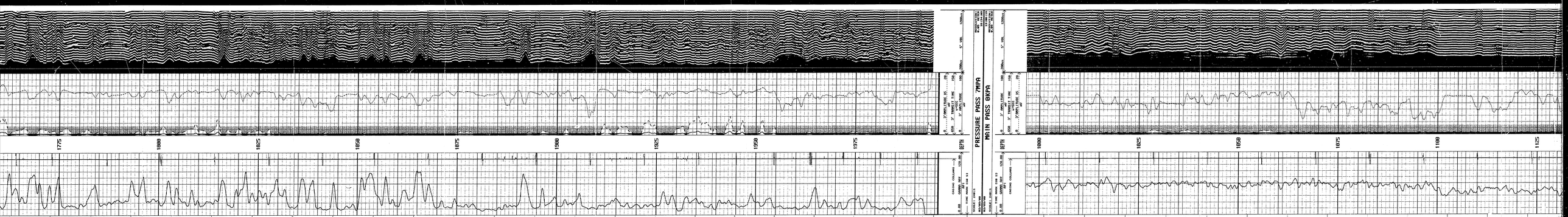
PRESSURE PASS 7MPA

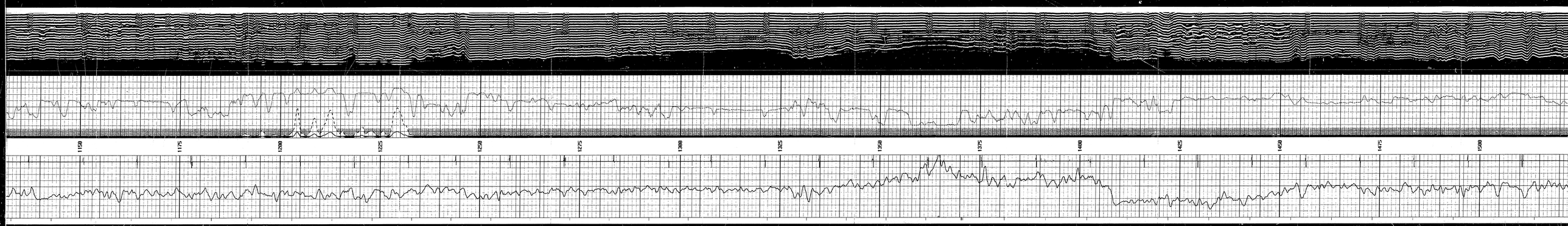
DEPTH

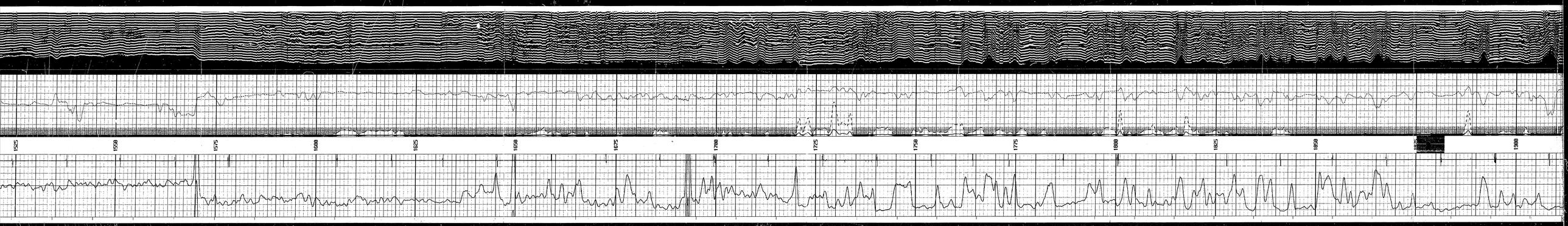
1000 1200 1400 1600 1800

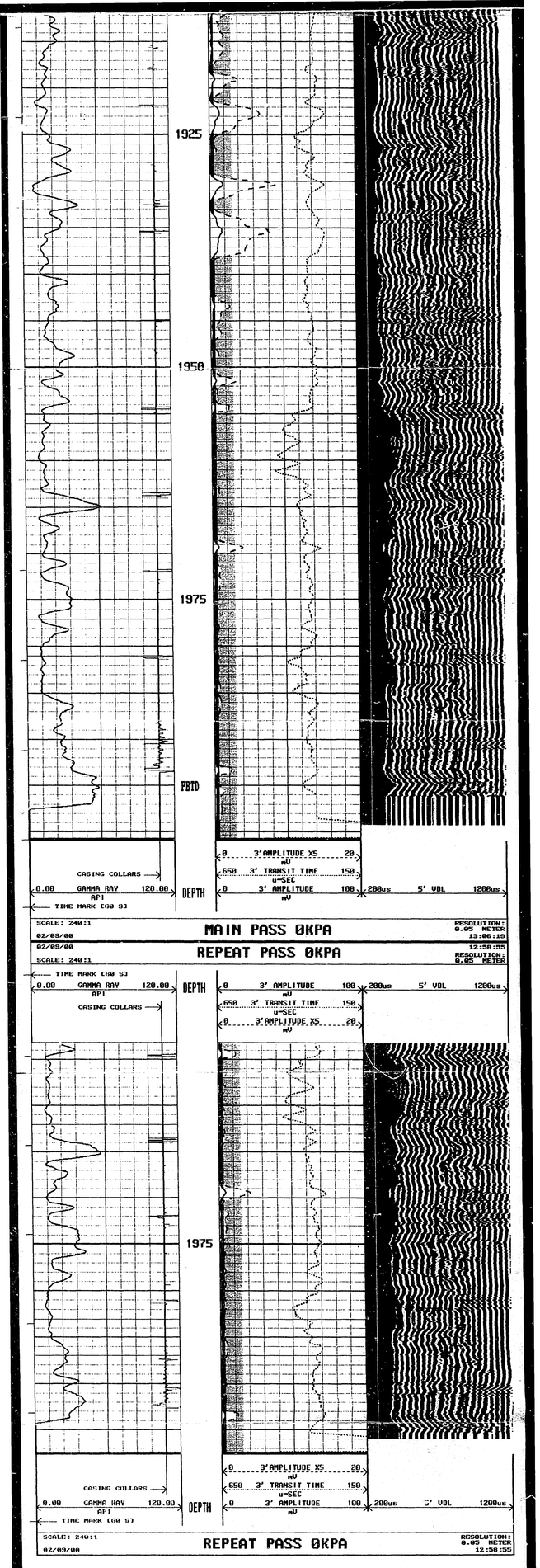
1175 1200 1225 1250

1625 1650 1675 1700 1725 1750


PRESSURE PASS 7MPA
MAIN PASS 6KPA
DEPTH
1775
1800
1825
1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100
2125


1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400
1425
1450
1475
1500


1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825
1850
1900
1925
1950


1925
1950
1975
PBTD
CASING COLLARS
0.00 GAMMA RAY 120.00
API
TIME MARK (60 S)
DEPTH
0 3' AMPLITUDE XS 20
mV
650 3' TRANSIT TIME 150
u-SEC
0 3' AMPLITUDE 100
mV
200us 5' VDL 1200us
SCALE: 240:1
02/09/00
MAIN PASS 0KPA
RESOLUTION: 0.05 METER
13:06:19
12:58:55
REPEAT PASS 0KPA
RESOLUTION: 0.05 METER
1975
CASING COLLARS
0.00 GAMMA RAY 120.00
API
TIME MARK (60 S)
SCALE: 240:1
02/09/00
REPEAT PASS 0KPA
RESOLUTION: 0.05 METER
12:58:55

BAKER HUGHES

Baker Atlas

GAMMA RAY CCL TCP POSITIONING LOG

FILING NO. 378467

COMPANY	PARAMOUNT RESOURCES LIMITED
WELL	PARA ET AL FT LIARD A-1
FIELD	FT. LIARD
PROVINCE	NORTHWEST TERRITORIES

LOCATION A-1 — LSD. A-1 — SEC. — TWP. — RGE. —

OTHER SERVICES

PERMANENT DATUM: GROUND LEVEL — ELEV. 517.2 — K.B. 522.7

LOG MEASURED FROM KELLY BUSHING 5.5 m Above Perm.Datum — G.L. 517.2

Date	FEBRUARY 11,2000	Type Fluid	WATER
Run No.	ONE	Fluid Level	1500.0
Type Log	GR/CCL	Wellhead Pressure	0 MPA
Depth Driller (OH)	2040.0	Max. Temp.°C	
Depth Driller (CH)	2036.0	Oper. Rig Time	2 HOURS
P.B.T.D. by Logger	NOT TAGGED	Recorded By	S.BURKE
Bottom Log Interval	1850.0	Witnessed By	J.FRIEND
Logged Interval	45.0	Apparent Cement Top	N/A
Top Log Interval	1815.0	Hoist Unit# /Eng.	10212 / 22935
Zone(s) of Interest	SEE DATA SHEET	Program	CSS/16.9
Line Type and Type	LIBEL SCF Dem		
Gun Charges	36GR/SP		

CASING RECORD	SIZE	lbs/ft	GRADE	TYPE JOINT	FROM	TO
SURFACE					SURFACE	
PRODUCTION	177.8	34.26	K-55		SURFACE	2047.0

SKETCH WELL DATA

SHOT DETAILS — SHOT NO. 1 — SHOT NO. 2 — SHOT NO. 3 — SHOT NO. 4

SHOT NO. 1 — DEPTH 1825.0 — FIRE NO. 110 — FIRE TIME 10:25:18 — ELEVATION 1800.0

SHOT NO. 2 — DEPTH 1825.0 — FIRE NO. 111 — FIRE TIME 10:25:18 — ELEVATION 1800.0

SHOT NO. 3 — DEPTH 1825.0 — FIRE NO. 112 — FIRE TIME 10:25:18 — ELEVATION 1800.0

SHOT NO.

BAKER HUGHES

Baker Atlas

GR-CCL
TCP CORRELATION

File No:	Company	PARAMOUNT RESOURCES LIMITED
	Well	PARA et al FT LIARD A-1
API No:	Field	FT. LIARD
	Province	N.W.T. CANADA

Location			Other Services
A-1			BRIDGE PLUG CDB
SEC	TWP	RGE	

Permanent Datum	G.L.	Elevation 517.2 m	Elevations
Log Measured From	K.B. 5.5 m	Above P. D.	KB 522.7 m
Drill Measured From	KELLY BUSHING		DF
			GL 517.2 m

Date	FEBRUARY 19, 2000
Run	ONE
Service Order	980716
Depth Driller	1865.8 m
Depth Logger	NOT TAGGED
Bottom Logged Interval	1814 m
Top Logged Interval	1743 m
Time Started	11:30
Time Finished	13:00
Operator Rig Time	1.5 HOURS
Type of Fluid in Hole	DRY
Fluid Density	N/A
Salinity	N/A
Fluid Level	DRY
Logged Cement Top	N/A
Wellhead Pressure	0 kPa
Maximum Hole Deviation	N/A
Nominal Logging Speed	10 mpm
Maximum Recorded Temperature	N/A
Reference Log	CBL-GR-CCL
Reference Log Date	FEBRUARY 9, 2000
Equipment No. / Location	10030 / G.P.
Recorded By	B.MCKEAGE
Witnessed By	J.FRIEND

END HERE

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Borehole Record

Bit Size	From	To
0 mm	0 m	0 m
0 mm	0 m	0 m

Casing Record

Size	Weight	Grade	From	To
177.8 mm	34.26 kg/m	K-55	0 m	2047 m
73 mm	9.7 kg/m	L-80	0 m	1828.13 m

Perforation Record

Perforation Type	Position	Phasing	Spacing	Density	From	To
127mm ERHSC 36g DP	TCP	60 deg		17 spm	1832 m	1834.5 m
127mm ERHSC 36g DP	TCP	60 deg		17 spm	1839 m	1840.5 m

Remarks

CORRELATED TO BAKER ATLAS CBL-GR-CCL LOG DATED FEBRUARY 9, 2000.

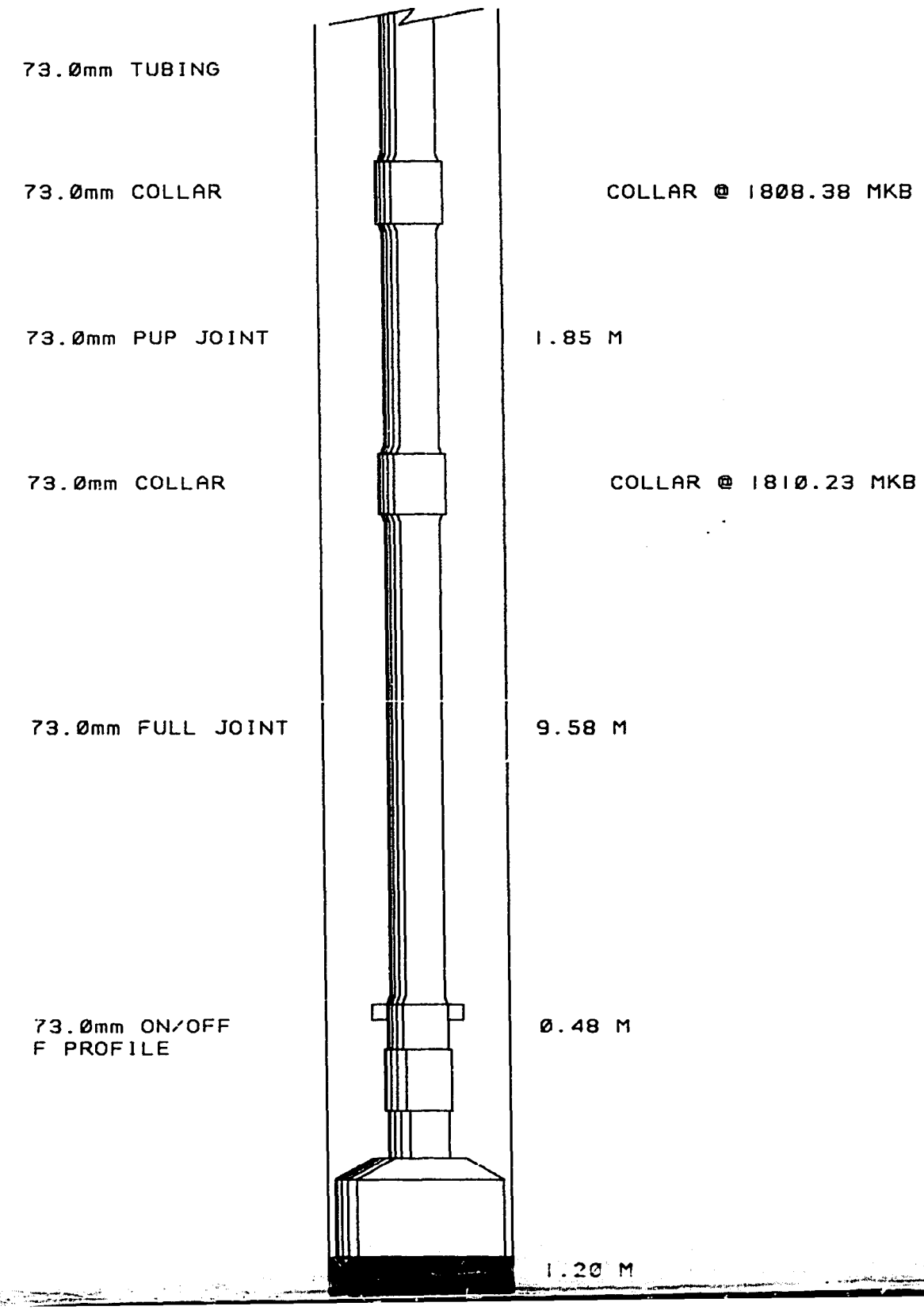
MAKER COLLAR ON DEPTH AT 1808.38 MKB, NO CONFIRMATION LOG NECESSARY.

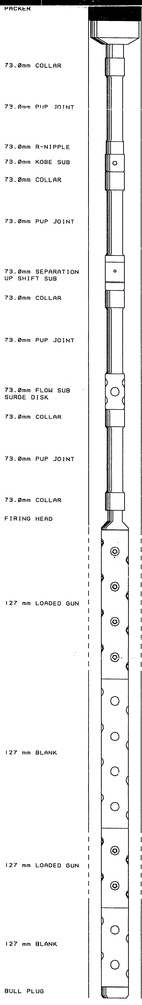
CREW: P.LUCAS * G.PRIMROSE RIG: CENALTA 42

Equipment Data

Run	Trip	Tool	Series Number	Serial Number	Position
1	1	CCL	2324XA	601843	FREE
1	1	GR	1311XA	154029	FREE

TCP DIAGRAM





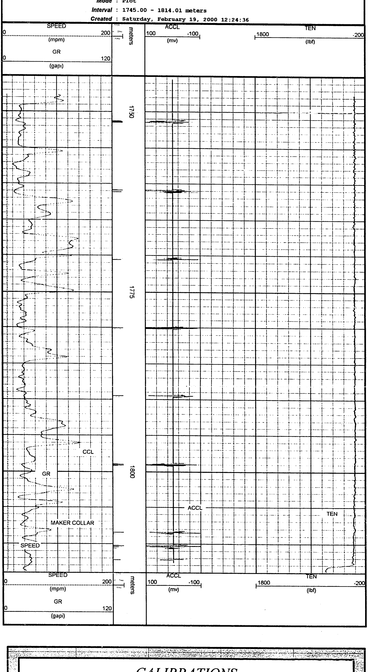
TCP CORRELATION LOG

DEPTH OFFSETS

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES
[illegible]	[illegible]	ACCL ACCL
[illegible]	[illegible]	CCL GR
[illegible]	[illegible]	SKEW

System : CASE Acquisition, v4.3.001e1
Program : Plot Manager, v4.3.079
Company Name : PARAMOUNT RESOURCES LIMITED
Well Name : PARA et al FT LIARD A-1
File Name : C:\welldata\0716gr\tcpgr00.xtf
Mode : Plot
Interval : 1745.00 - 1814.01 meters
Created : Saturday, February 19, 2000 12:24:36



CALIBRATIONS

GAMMA RAY

Calibration File: [illegible]

CALIBRATION SUMMARY

DATE/TIME PERFORMED: [illegible] TOOL SERIES: [illegible] ASSET: [illegible] SEQ#: [illegible]

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

BAKER HUGHES
Baker Atlas
CASE

Company	PARAMOUNT RESOURCES LIMITED		File No:
Well	PARA et al FT LIARD A-1		API No:
Field	FT. LIARD		
Province	N.W.T.	CANADA	
Location		Elevations	
A-1		KB 522.7 m	
		DF	
		GL 517.2 m	
SEC	TWP	RGE	

Baker Atlas	File No:
BAKER HUGHES	API No:

Bridge Plug

N.E.R. COPY

Company	PARAMOUNT RESOURCES LIMITED
Well	PARA et al FT LIARD A-1
Field	FT. LIARD
Province	N.W.T. CANADA
Location	A-1
SEC. TWP RGE	
Other Services	CBB
Elevations	KB 522.7 m, DF, GL 517.2 m
Permanent Datum	G.L.
Log Measured From	KELLY BUSHING 5.5 m Above P.D.
Drill Measured From	K.B.

Date	FEBRUARY 18, 2000
Run	ONE
Service Order	1697516
Depth Driller	1897 m
Depth Logger	1897 m
Bottom Logged Interval	1872.5 m
Top Logged Interval	1810 m
Type Fluid in Hole	SPUD MUDDED
Time Started	11:30
Time Finished	17:00
Operating Rig Time	5.5 hours
Max Rec Temp	37 degC
Equip. Location	NORMAN
Recorded By	J.PEDRO
Witnessed By	G.PRIEBOSE

Fluid Density	N/A
Fluid Level	N/A
Salinity	N/A
Surface Pressure	0 PSI
Wellhead Pressure	0 PSI
Maximum Hole Deviation	N/A
Maximum Recorded Temperature	N/A degC
Reference Log	CBL-GR-CCL
Reference Log Date	FEBRUARY 9, 2000
Reference Log Run	ONE
Logging Unit Number	2
Logging Unit Location	G.V.

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Borehole Record		
Bit Size	From	To
0 mm	0 m	0 m

Casing Record				
Size	Weight	Grade	From	To
177.8 mm	34.26 kg/m	K-55	0 m	2047 m

Remarks

CORRELATED TO BAKER ATLAS CBL-GR-CCL LOG DATED FEBRUARY 9, 2000.
BRIDGE PLUG SET AT 1870.0 MKB CENTER ELEMENTS.
CCL TO CENTER ELEMENTS = 3.0 M.

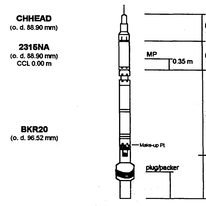
CREW: G.PRIEBOSE + P.LUCAS RIG: CENALTA 42

Equipment Data

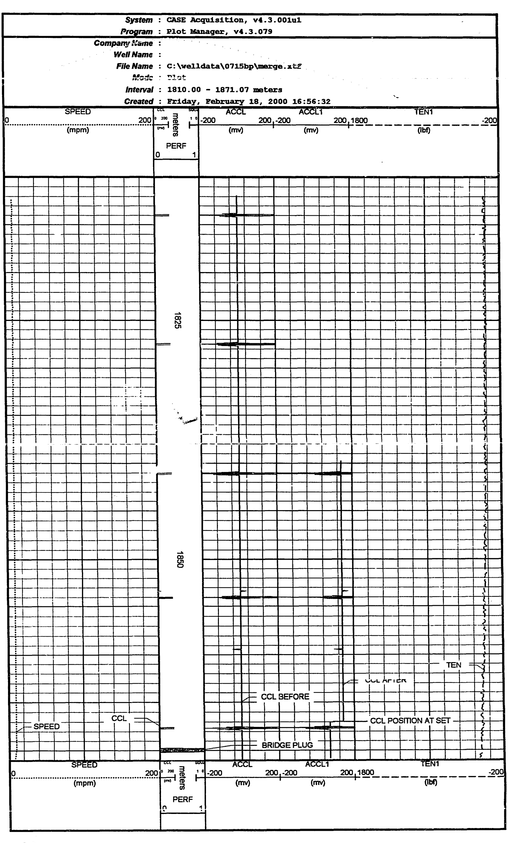
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	CCL	TITAN	103	FREE

TOOL DIAGRAM

TOTAL LENGTH 2.88 m
TOOL STRING MAX. O.D. 96.52 mm



BRIDGE PLUG SET AT 1870 m
CCL TO BRIDGE PLUG 3.0 m
CCL STOP DEPTH 1867 m



BAKER HUGHES	Company	PARAMOUNT RESOURCES LIMITED	File No:
Baker Atlas	Well	PARA et al FT LIARD A-1	API No:
CASE	Field	FT. LIARD	
	Province	N.W.T. CANADA	
	Location	A-1 SEC TWP RGE	Elevations KB 522.7 m, DF, GL 517.2 m

FILE COPY

BAKER HUGHES

Baker Atlas

Bridge Plug

File No:	Company	PARAMOUNT RESOURCES LIMITED	
	Well	PARA et al FT LIARD A-01	
API No:	Field	FT. LIARD	
	Province	N.W.T.	CANADA
	Location		Other Services
		A-01	CDB
			TCP GR-CCL
	SEC	TWP	RGE
Permanent Datum	G.L.	Elevation 517.2 m	Elevations
Log Measured From	K.B. 5.5 m	Above P. D.	KB 522.7 m
Drill Measured From	KELLY BUSHING		DF
			GL 517.2 m

Date	FEBRUARY 22, 2000		
Run	ONE		
Service Order	980717		
Depth Driller	1865.8 m		
Depth Logger	NOT TAGGED		
Bottom Logged Interval	1830.5 m		
Top Logged Interval	1760 m		
Time Started	19:00		
Time Finished	20:30		
Operator Rig Time	1.5 HOURS		
Type of Fluid in Hole	WATER		
Fluid Density	N/A		
Salinity	N/A		
Fluid Level	FULL		
Logged Cement Top	N/A		
Wellhead Pressure	0 kPa		
Maximum Hole Deviation	N/A		
Nominal Logging Speed	10 mpm		
Maximum Recorded Temperature	N/A		
Reference Log	CBL-GR-CCL		
Reference Log Date	FEBRUARY 9, 2000		
Equipment No. / Location	10030	G.P.	
Recorded By	B.MCKLAGH		
Witnessed By	M.EDWARDS		

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Borehole Record		
Bit Size	From	To
0 mm	0 m	0 m

Casing Record				
Size	Weight	Grade	From	To
177.8 mm	34.26 kg/m	K-55	0 m	2047 m

Remarks

CORRELATED TO BAKER ATLAS CBL-GR-CCL LOG DATED FEBRUARY 9, 2000.

BAKER BRIDGE PLUG SET AT 1830 MKB CENTER ELEMENTS.

CCL TO CENTER ELEMENTS = 3.0 M.

CCL STOP DEPTH = 1827.0 MKB.

BRIDGE PLUG PRESSURE TESTED TO 7 MPA.

5.5 LINEAR METERS OF CLASS "G" CEMENT DUMP BAILED ON BRIDGE PLUG.

CREW: G.PRIMROSE * P.LUCAS RIG: CENALTA 42

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	CCL	TITAN	102	FREE

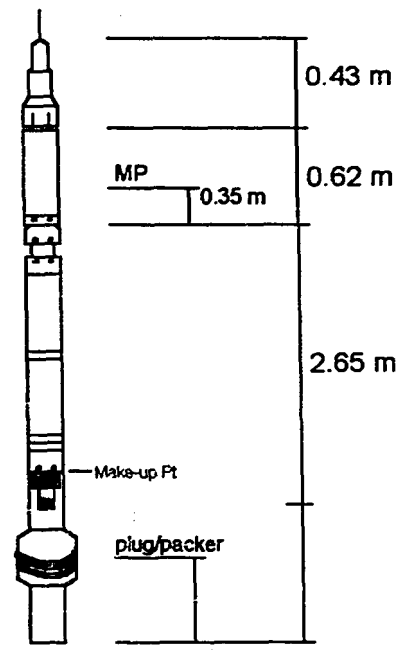
TOOL DIAGRAM

TOTAL LENGTH 2.88 m
TOOL STRING MAX. O.D. 96.52 mm

CHHEAD
(o. d. 88.90 mm)

2315NA
(o. d. 88.90 mm)
CCL 0.00 m

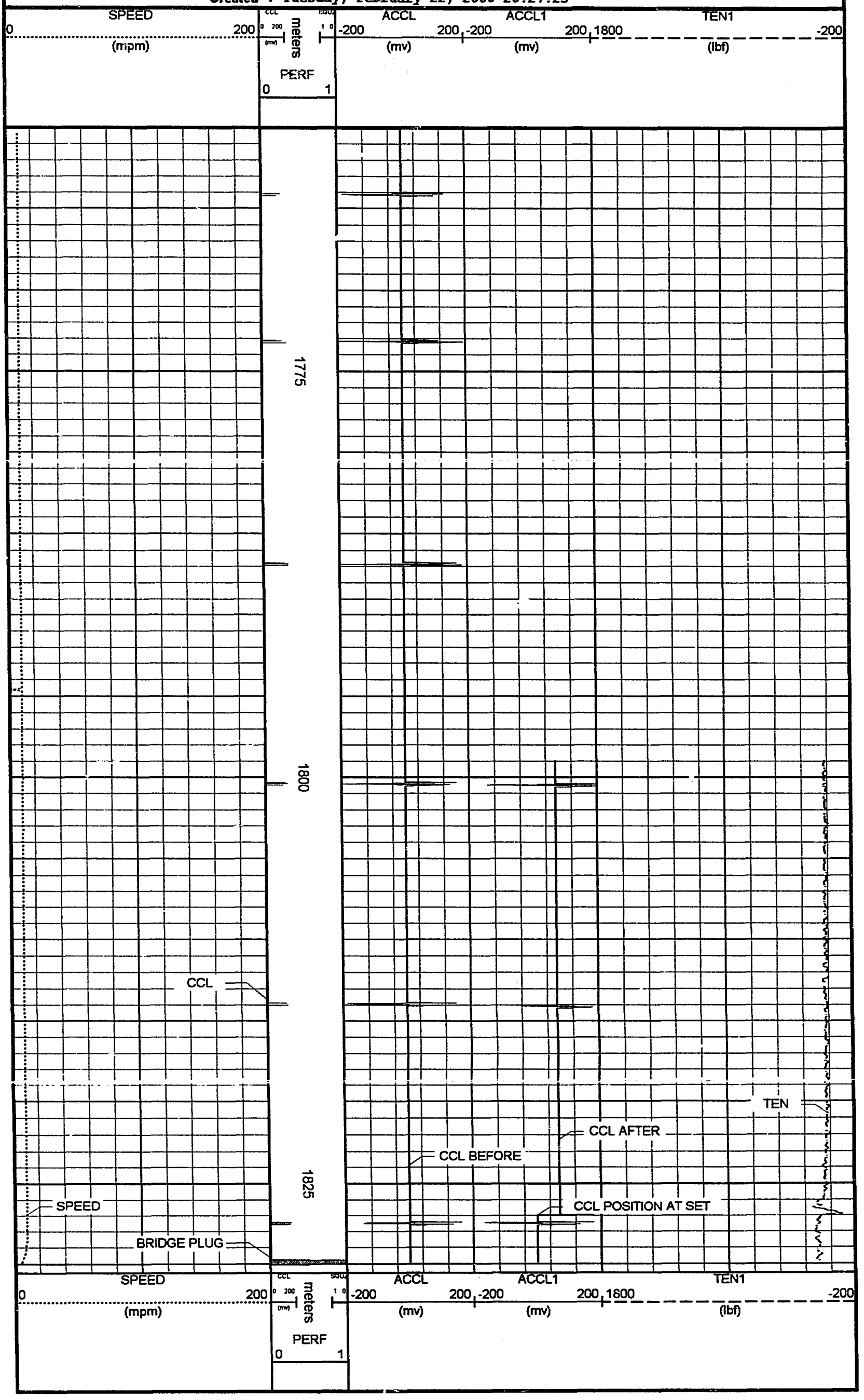
BKR20
(o. d. 96.52 mm)



BRIDGE PLUG SET AT 1830 m
CCL TO BRIDGE PLUG 3.0 m
CCL STOP DEPTH 1827 m

System : CASE Acquisition, v4.3.001u1
Program : Plot Manager, v4.3.079

Company Name :
Well Name :
File Name : C:\welldata\0717bp\merge.xtf
Mode : Plot
Interval : 1760.01 - 1830.50 meters
Created : Tuesday, February 22, 2000 20:27:25



BAKER HUGHES Baker Atlas CASE	Company: PARAMOUNT RESOURCES LIMITED Well: PARA et al FT LIARD A-01 Field: FT. LIARD Province: N.W.T. CANADA		File No: API No:
	Location A-01 SEC TWP RGE	Elevations KB 522.7 m DF GL 517.2 m	

NEW COPY

AB-ECU & TCP CORRELATION

Baker Atlas

File No:	
API No:	

Company	DIAMOND RESOURCES LIMITED	
Well	DRA #6 AL PT 12AD5 A-01	
Field	PT. 12AD5	
Province	P.N.T.	OWNER
Location		Other Services
A-01		GR
		MEDIUM PLUG
SEC	TWP	RGE

Permanent Datum	G.L.	Elevation	517.3 m
Log Measured From	K.B.	5.5 m Above P. D.	Elevation: KB 517.3 m
Drill Measured From	WELLY RUBBERS		DF
			GL 517.3 m

Date	FEBRUARY 23, 2022	
Run	1	
Service Order	882715	
Depth Driller	1824.0 m	
Depth Logger	MOR 1826SD	
Bottom Logged Interval	1765 m	
Top Logged Interval	1715 m	
Type Fluid in Hole	SW	
Fluid Salinity	32.0	
Operator Rig Time	4 HOUR	
Type of Fluid in Hole	SW	
Fluid Density	N/A	
Salinity	N/A	
Fluid Level	TOP	
Maximum Recorded Temp	N/A	
Estimated Presure	N/A	
Maximum Hole Deviation	N/A	
Nominal Logging Speed	11 MPM	
Maximum Recorded Temperature	N/A	
Reference Log	PRE-GR-CCL	
Reference Log Date	FEBRUARY 2, 2022	
Reference Log Elevation	517.3 m	G.L.
Recorded By	A.MCBEAN	
Witnessed By	A.EDWARDS	

Bow Springs

Run	Tool	No.
1	11924	1

Decentralizers

Run	Tool	No.
1	11924	1

Weight Bar(s)

Run	Tool	No.
1	11924	1

Perforating Record

Run	Tool	No.
1	11924	1

Cable Head

Run	Tool	No.
1	11924	1

Cable Data

	No. Weight	Diameter
Cable	2.2 kg/m	21.5 mm

Cable Head

	No.	Diameter
Cable	1 ea	21.5 mm

Cable Termination

	No.	Diameter
Cable	1 ea	21.5 mm

Centralizer

	No.	Diameter
Cable	1 ea	21.5 mm

Fluid Type

	Density	Viscosity
Fluid	1.03 g/cc	1.0 cp

Fluid Loss

	Resistivity	Temperature
Fluid	0.2 ohm	21.0 deg C

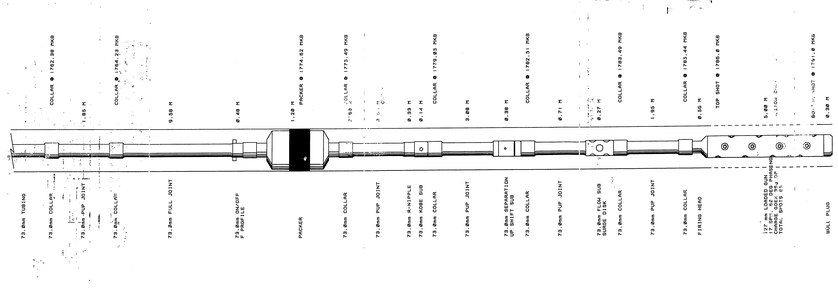
Source of Sample

Rm @ Measured Temp	0.2 ohm @ 21.0 deg C
Rmf @ Measured Temp	0.2 ohm @ 21.0 deg C
Rmc @ Measured Temp	0.2 ohm @ 21.0 deg C
Source of Rmf	MEASURED
Source of Rmc	MEASURED
Rm @ BHT	0.2 ohm @ 21.0 deg C
Time Since Circulation	4 HOUR
Time Since Logger at Bottom	4 HOUR
Maximum Recorded Temperature	21.0 deg C
Equipment Number	11924
Location	DARTMOUTH
Recorded By	A.MCBEAN
Witnessed By	A.EDWARDS

Disclaimer

Drawings or interpretations of logs are conclusions only and do not constitute the totality of data used for analysis. The use of interpretations or opinions based on information from checked or other sources for any purpose is at the sole discretion and risk of the user. Baker Atlas does not guarantee the accuracy of any interpretation and is not responsible for any loss, cost, damages, or expenses whatsoever incurred or sustained by anyone resulting from any interpretation made by any of our employees.

TCP DIAGRAM



TCP CORRELATION LOG

CALIBRATIONS

GAMMA RAY

Company	DIAMOND RESOURCES LIMITED
Well	DRA #6 AL PT 12AD5 A-01
Field	PT. 12AD5
Province	P.N.T.
Location	OWNER
A-01	
SEC TWP RGE	

KB	523.1 m
DF	
GL	517.3 m

File No:	
API No:	

BAKER ATLAS

CASE

BEST
COPY
ON FILE